Weatherford®

ARRAY INDUCTION SHALLOW FOCUSED ELECTRIC LOG

COMPANY	LARSON ENGINEERING, INC.
WELL	INDUSTRIAL PARK #1-19
FIELD	WIDLCAT
PROVINCE/COUNTY	LANE
COUNTRY/STATE	USA / KANSAS
LOCATION	936' FNL & 1163' FEL NW-SW-NE-NE

SEC	TWP	RGE	Other Services
19	18S	28W	MDN/MPD
			MMR
API Number	15-101-22575		MSG

Permanent Datum GL, Elevation 2761 feet
Log Measured From KB
Drilling Measured From KB

Elevations:	feet
KB	2770.00
DF	2768.00
GL	2761.00

Date	06-DEC-2015						
Run Number	ONE						
Service Order	7055-136599778						
Depth Driller	4650.00	feet					
Depth Logger	4646.00	feet					
First Reading	264.00	feet					
Last Reading	4643.00	feet					
Casing Driller	265.00	feet					
Casing Logger	264.00	feet					
Bit Size	7.875	inches					
Hole Fluid Type	WBM						
Density / Viscosity	9.25	lb/USg	56.00	sec/qt			
PH / Fluid Loss	9.50		6.80	ml/30Min			
Sample Source	MUD TANK						
Rm @ Measured Temp	2.50 @ 52.0	ohm-m					
Rmf @ Measured Temp	2.0 @ 52.0	ohm-m					
Rmc @ Measured Temp	3.0 @ 52.0	ohm-m					
Source Rmf / Rmc	CALC		CALC				
Rm @ BHT	1.20 @112.0	ohm-m					
Time Since Circulation	5 HOURS						
Max Recorded Temp	112.00	deg F					
Equipment / Base	13379		OKC				
Recorded By	JUSTIN HICKS						
Witnessed By	VERN SCHRAG						

BOREHOLE RECORD

Last Edited: 06-DEC-2015 12:19

Bit Size inches	Depth From feet	Depth To feet
7.875	264.00	4650.00

CASING RECORD

Type	Size inches	Depth From feet	Shoe Depth feet	Weight pounds/ft
SURFACE	8.625	0.00	264.00	24.00

REMARKS

TOOLS RAN: CBH, SHA, MCG, MSG, MMR, MDN, MPD, MFE, MAI RAN IN COMBINATION.

HARDWARE USED:
MAI: TWO 0.5 INCH STANDOFFS.
MFE: ONE 0.5 INCH STANDOFF.
MDN: DUAL NEUTRON BOWSPRING.
MPD: 8 INCH PROFILE PLATE.

2.71 G/CC DENSITY MATRIX USED TO CALCULATE POROSITY.
ALL INTERVALS LOGGED AND SCALED PER CUSTOMER'S REQUEST.

TOTAL HOLE VOLUME FROM TD TO SURFACE CASING = 1783 CU.FT.
ANNULAR HOLE VOLUME WITH 5.5 INCH PRODUCTION CASING FROM TD TO SURFACE CASING = 1062 CU.FT.

FIELD TICKET NUMBER: 7055-136599778

RIG: H AND D DRILLING, RIG #3

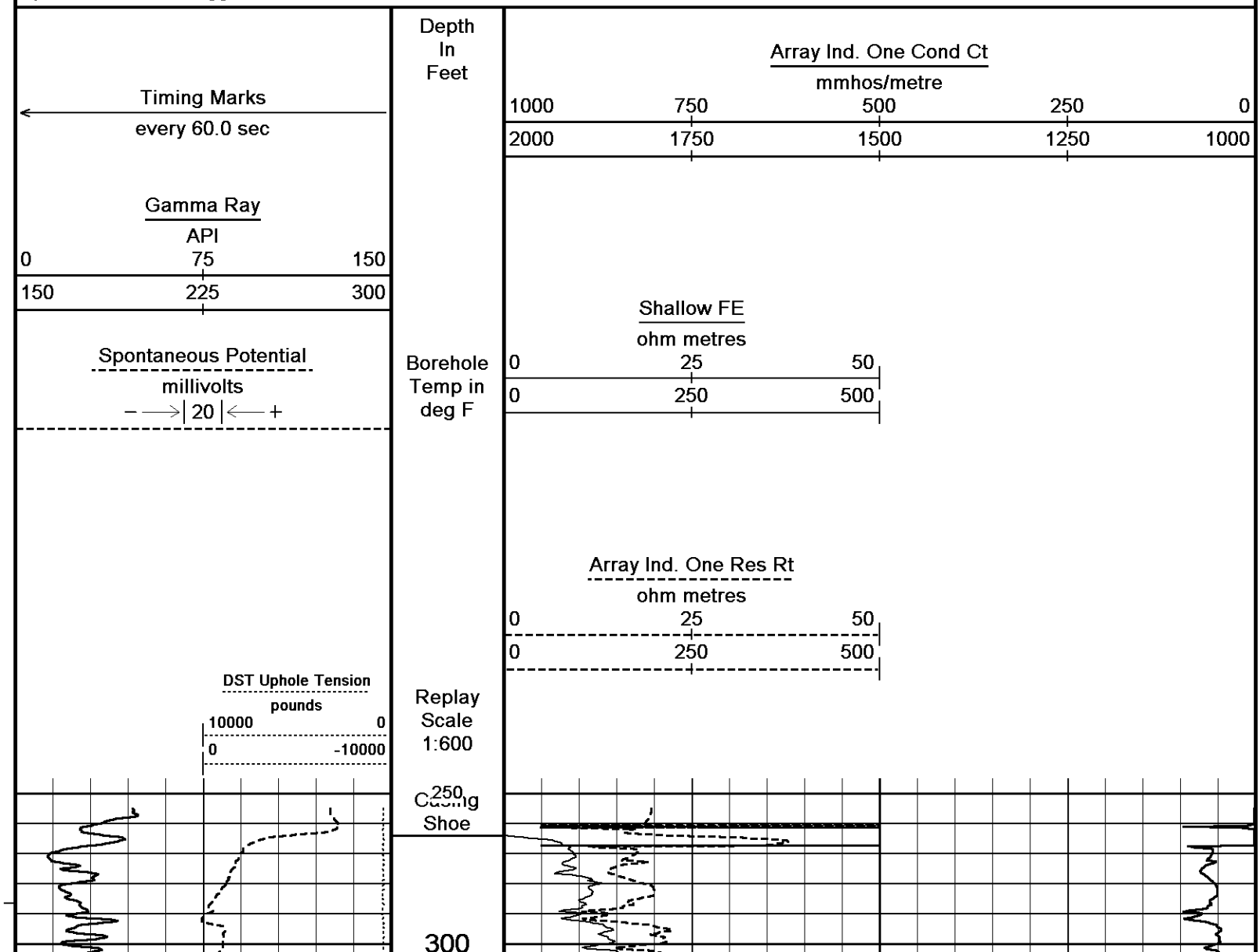
OPERATOR(S): R. BRADSHAW

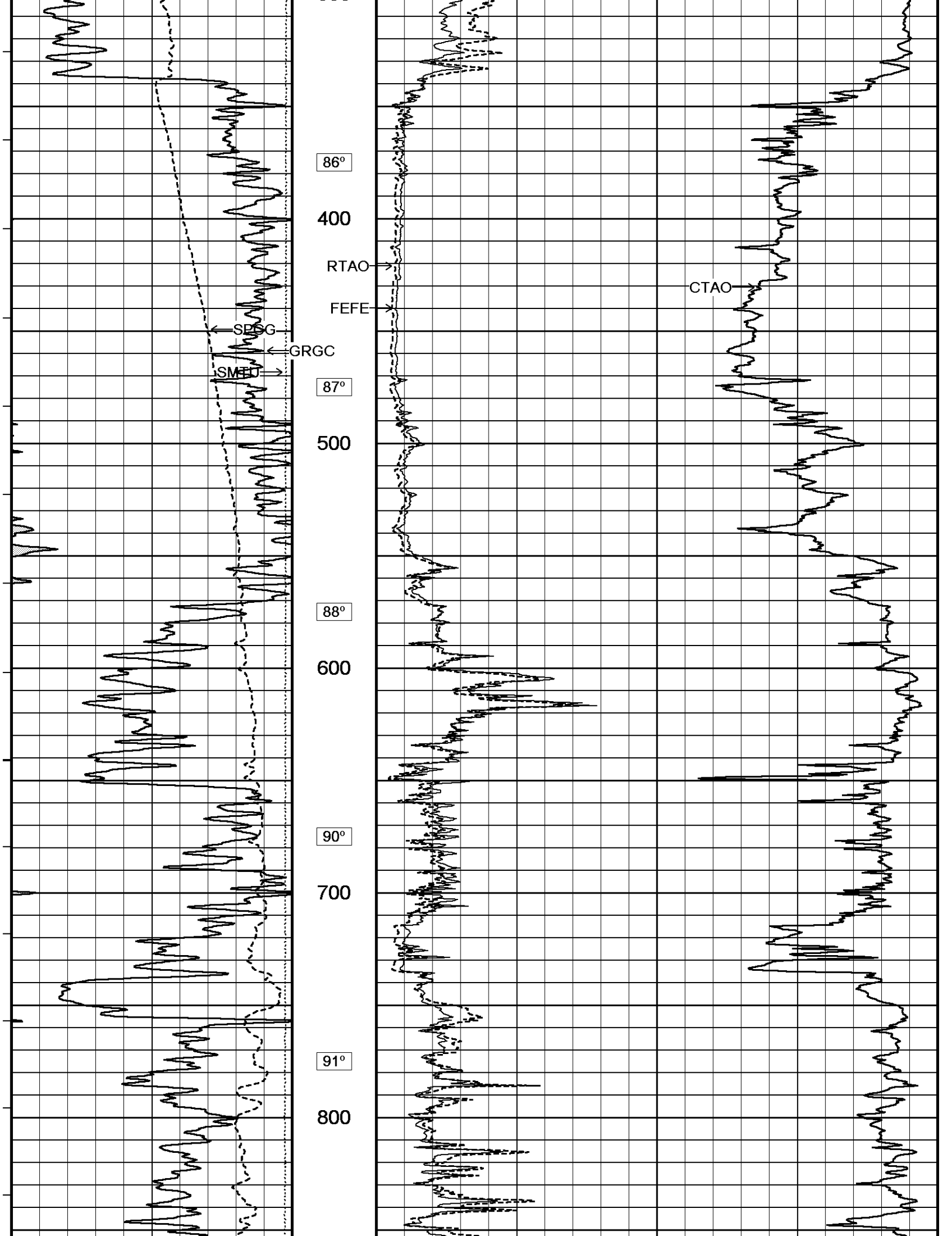
MUD PROPERTIES:
CHLORIDES: 2400 MG/L
LCM: 2 PPB

HOLE WASHOUTS AND RUGOSITY WILL AFFECT LOG QUALITY AND REPEATABILITY.

2 INCH MAIN LOG

Depth Based Data - Maximum Sampling Increment 10.0cm
Plotted on 06-DEC-2015 16:40
Filename: E:\WLS 15.03.4802\LARSON (INDUSTRIAL PARK 1-19)\MAIN PASS.dta
Recorded on 06-DEC-2015 13:54
System Versions: Logged with 15.03.4802 Plotted with 15.03.4802

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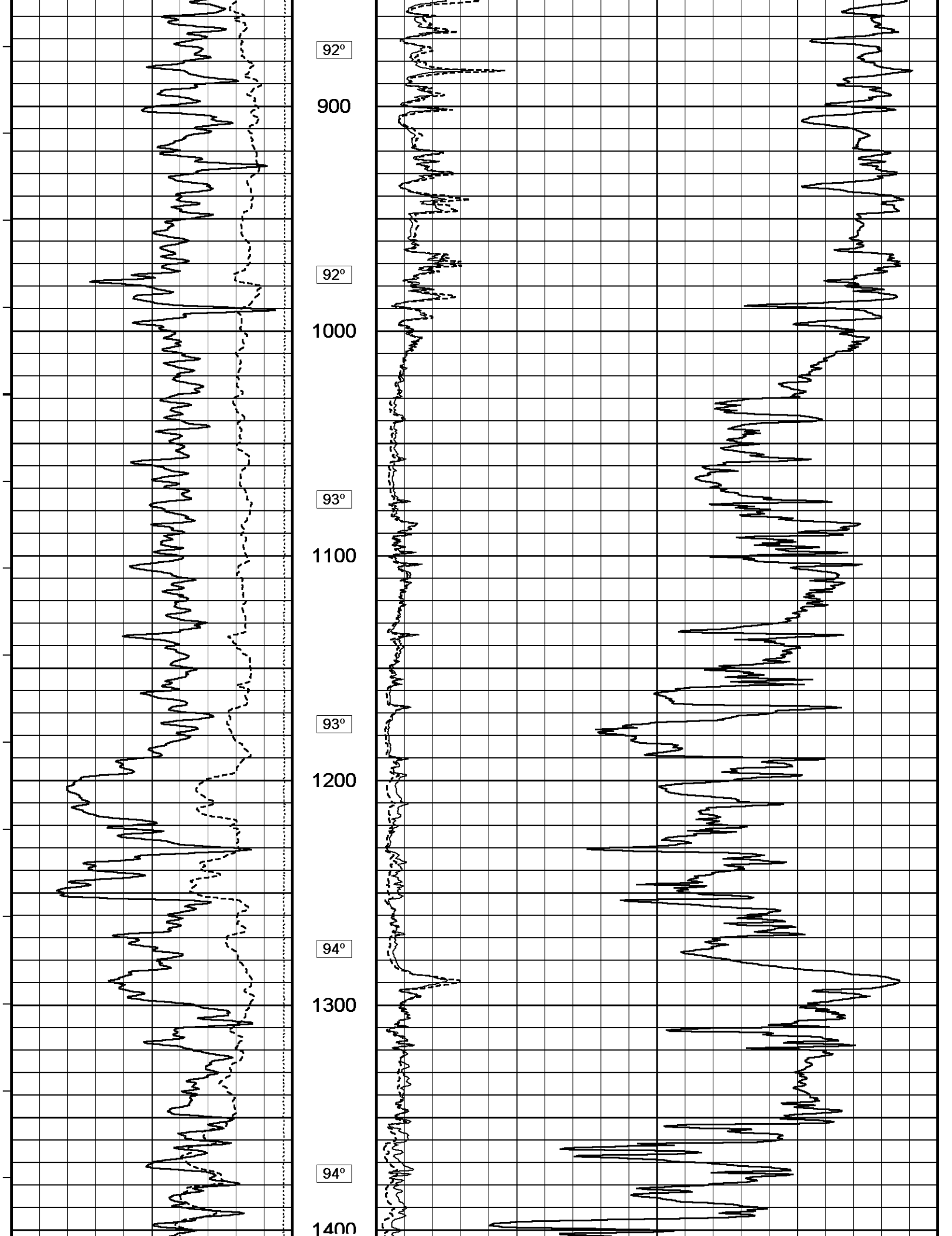
400
RTAO
FEFE
CTAO
SPSG
GRGC
SMFU
87°
500
88°
600
90°
700
91°
800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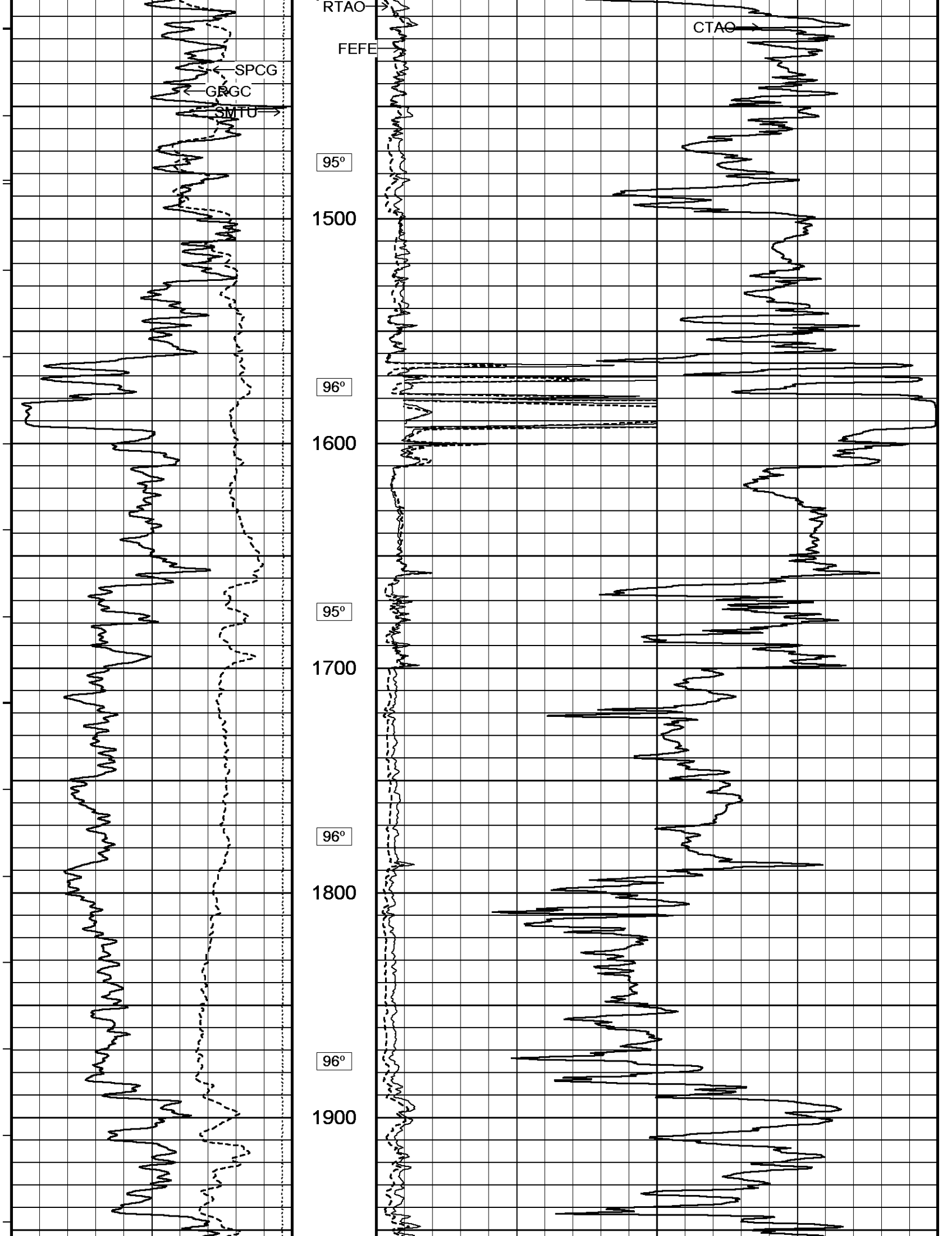
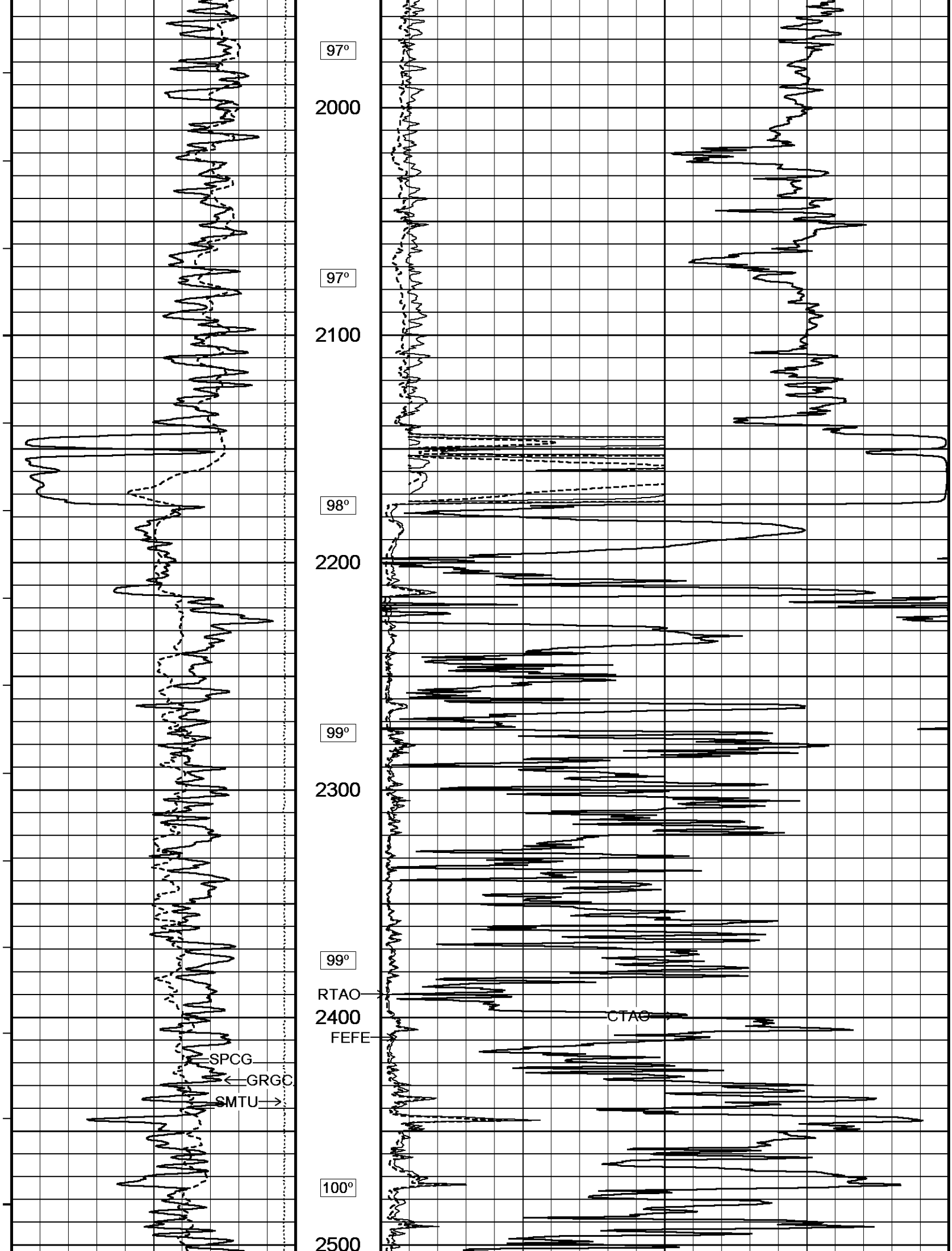
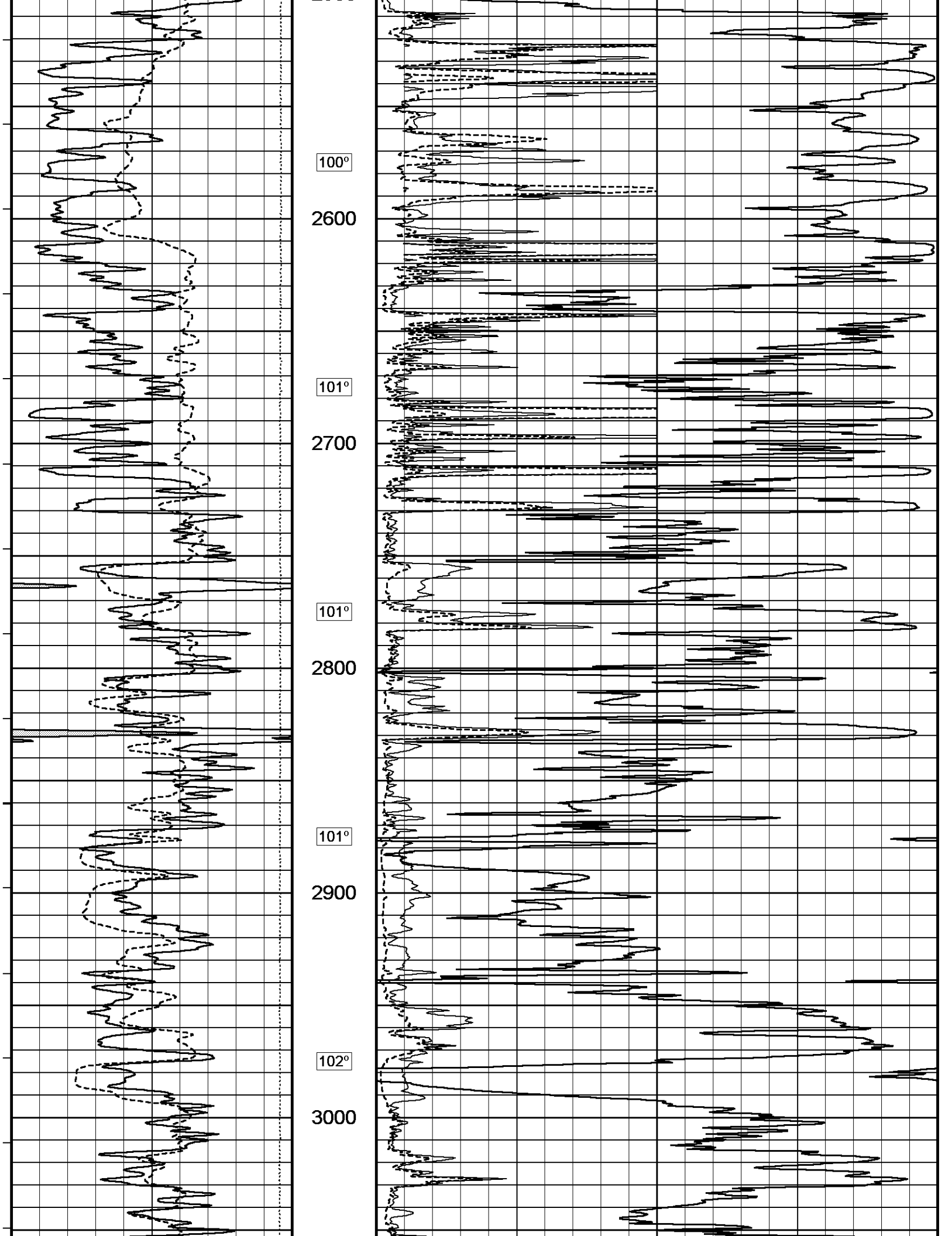
900
92°
1000
93°
1100
93°
1200
94°
1300
94°
1400


RTAO
FEFE
CTAO
SPCG
GRGC
SMTU
95°
1500
96°
1600
95°
1700
96°
1800
96°
1900


97°
2000
97°
2100
98°
2200
99°
2300
99°
RTAO
2400
FEFE
CTAO
SPCG
GRGC
SMTU
100°
2500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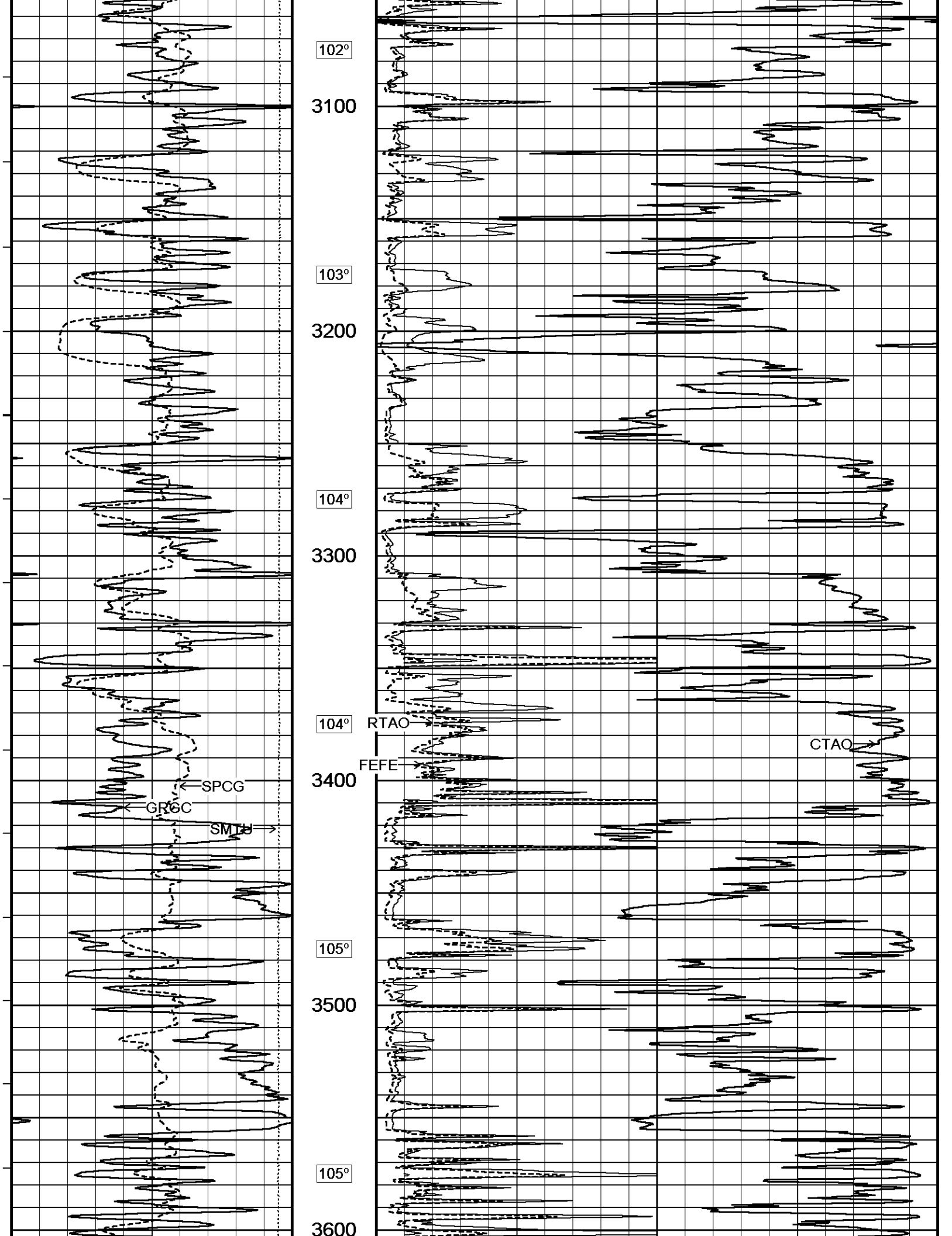
2600
101°
2700
101°
2800
101°
2900
102°
3000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3100
103°
3200
104°
3300
104°
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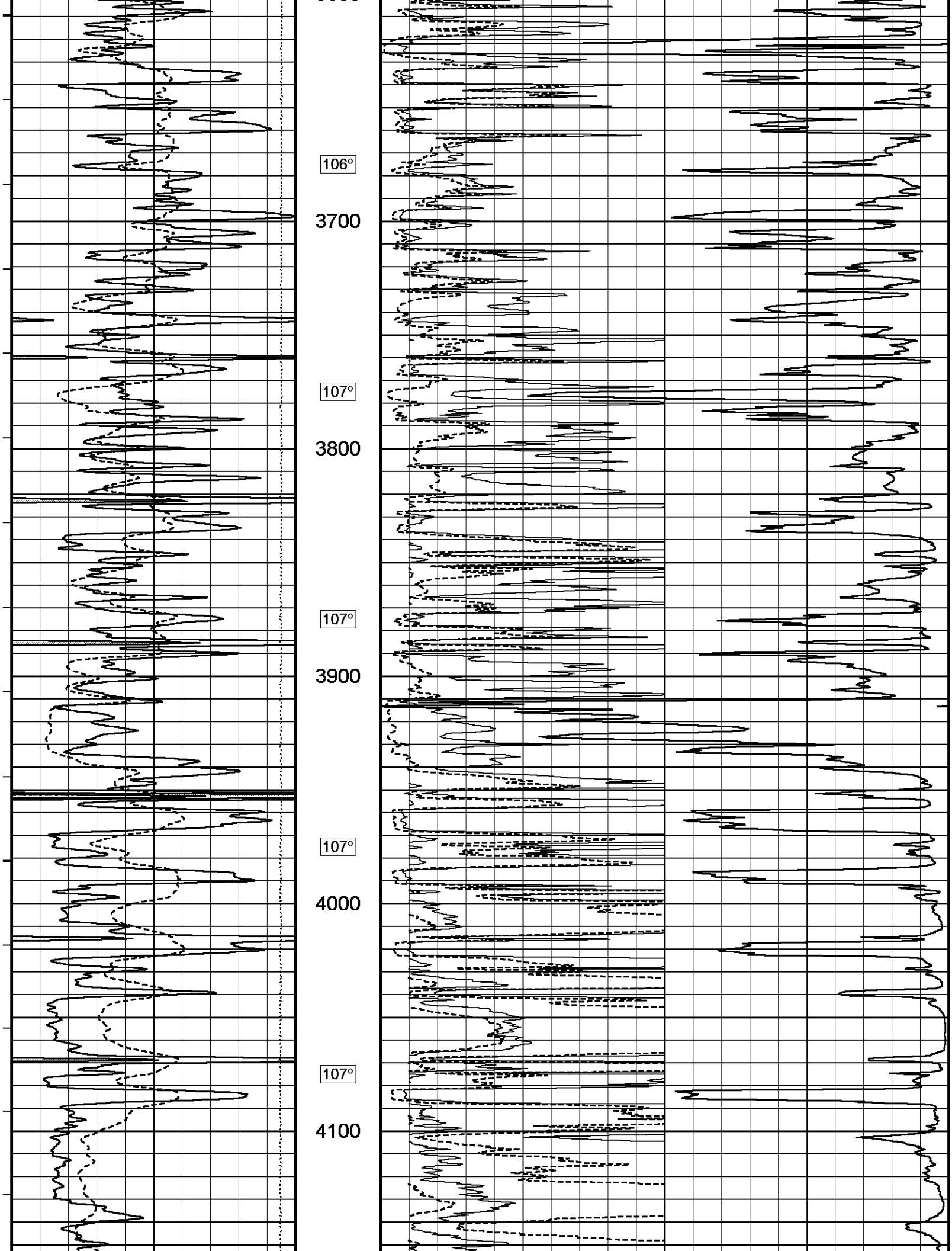
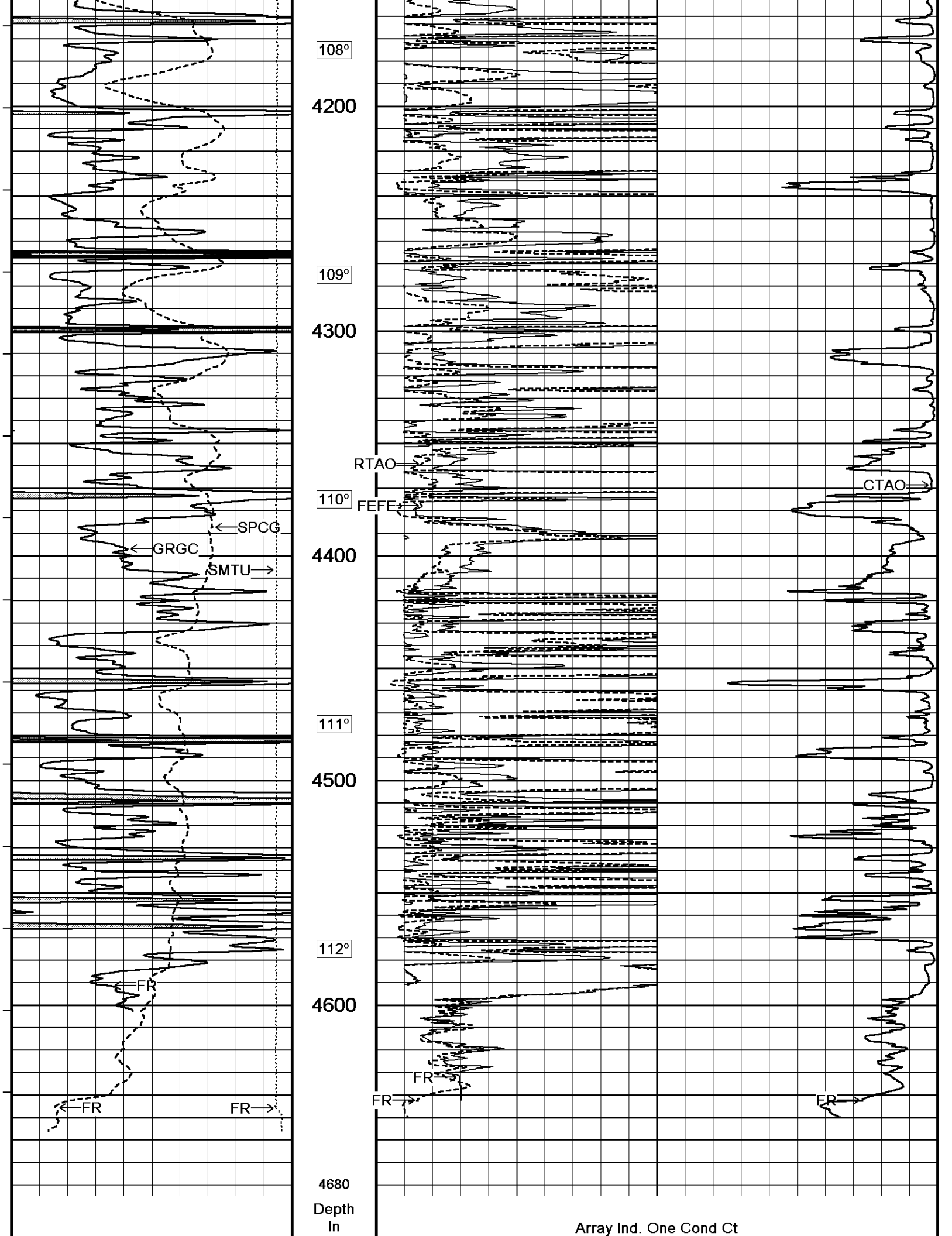
CTAO
FEFE
3400
SPCG
GR6C
SMTU
105°
3500
105°
3600


106°
3700
107°
3800
107°
3900
107°
4000
107°
4100


108°
4200
109°
4300
RTAO
110°
FEFE
CTAO
SPCG
GRGC
SMTU
4400
111°
4500
112°
FR
4600
FR
FR
FR
FR
4680
Depth
In
Array Ind. One Cond Ct

Timing Marks
every 60.0 sec

Gamma Ray
API
0 75 150
150 225 300

Spontaneous Potential
millivolts
− → | 20 | ← +

DST Uphole Tension
pounds
10000 0
0 -10000

Depth In Feet

Borehole Temp in deg F

mmhos/metre
1000 750 500 250 0
2000 1750 1500 1250 1000

Shallow FE
ohm metres
0 25 50
0 250 500

Array Ind. One Res Rt
ohm metres
0 25 50
0 250 500

Replay Scale 1:600

Depth Based Data - Maximum Sampling Increment 10.0cm
Filename: E:\WLS 15.03.4802\LARSON (INDUSTRIAL PARK 1-19)\MAIN PASS.dta
System Versions: Logged with 15.03.4802 Plotted with 15.03.4802
Plotted on 06-DEC-2015 16:40
Recorded on 06-DEC-2015 13:54

2 INCH MAIN LOG

5 INCH ANHYDRITE SECTION

Depth Based Data - Maximum Sampling Increment 10.0cm
Filename: E:\WLS 15.03.4802\LARSON (INDUSTRIAL PARK 1-19)\MAIN PASS.dta
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Plotted on 06-DEC-2015 16:40
Recorded on 06-DEC-2015 13:54

Timing Marks
every 60.0 sec

Spontaneous Potential
millivolts
− → | 20 | ← +

MSG Gamma Ray
API
0 75 150
150 225 300

Uranium Stripped Gamma
API
0 75 150
150 225 300

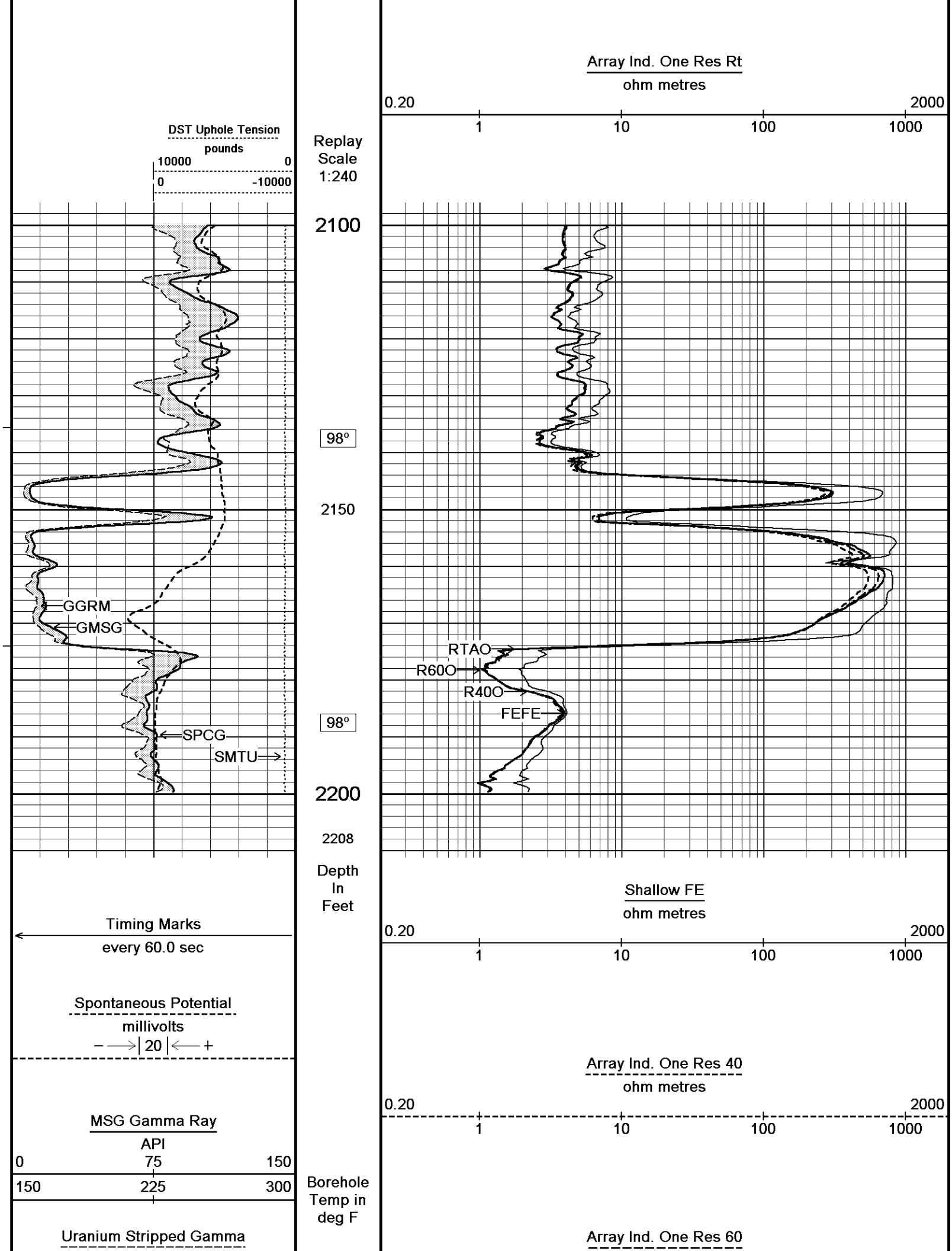
Depth In Feet

Borehole Temp in deg F

Shallow FE
ohm metres
0.20 2000
1 10 100 1000

Array Ind. One Res 40
ohm metres
0.20 2000
1 10 100 1000

Array Ind. One Res 60
ohm metres
0.20 2000
1 10 100 1000


DST Uphole Tension
pounds
10000
0
0
-10000
Replay
Scale
1:240
2100
98°
2150
GGRM
GMSG
SPCG
SMTU
98°
2200
2208
Depth
In
Feet
Timing Marks
every 60.0 sec
Spontaneous Potential
millivolts
– 20 +
MSG Gamma Ray
API
0
75
150
150
225
300
Borehole
Temp in
deg F
Uranium Stripped Gamma
Array Ind. One Res Rt
ohm metres
0.20
2000
1
10
100
1000
RTAO
R60O
R40O
FEFE
Shallow FE
ohm metres
0.20
2000
1
10
100
1000
Array Ind. One Res 40
ohm metres
0.20
2000
1
10
100
1000
Array Ind. One Res 60

API
0 75 150
150 225 300

DST Uphole Tension
pounds
10000 0
0 -10000

Replay
Scale
1:240

ohm metres
0.20 2000
1 10 100 1000

Array Ind. One Res Rt
ohm metres
0.20 2000
1 10 100 1000

Depth Based Data - Maximum Sampling Increment 10.0cm — Plotted on 06-DEC-2015 16:40
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5 INCH ANHYDRITE SECTION

5 INCH MAIN LOG

Depth Based Data - Maximum Sampling Increment 10.0cm — Plotted on 06-DEC-2015 16:40
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Timing Marks
every 60.0 sec

Spontaneous Potential
millivolts
− → | 20 | ← +

MSG Gamma Ray
API
0 75 150
150 225 300

Uranium Stripped Gamma
API
0 75 150
150 225 300

DST Uphole Tension
pounds
10000 0
0 -10000

Depth
in
Feet

Borehole
Temp in
deg F

Replay
Scale
1:240

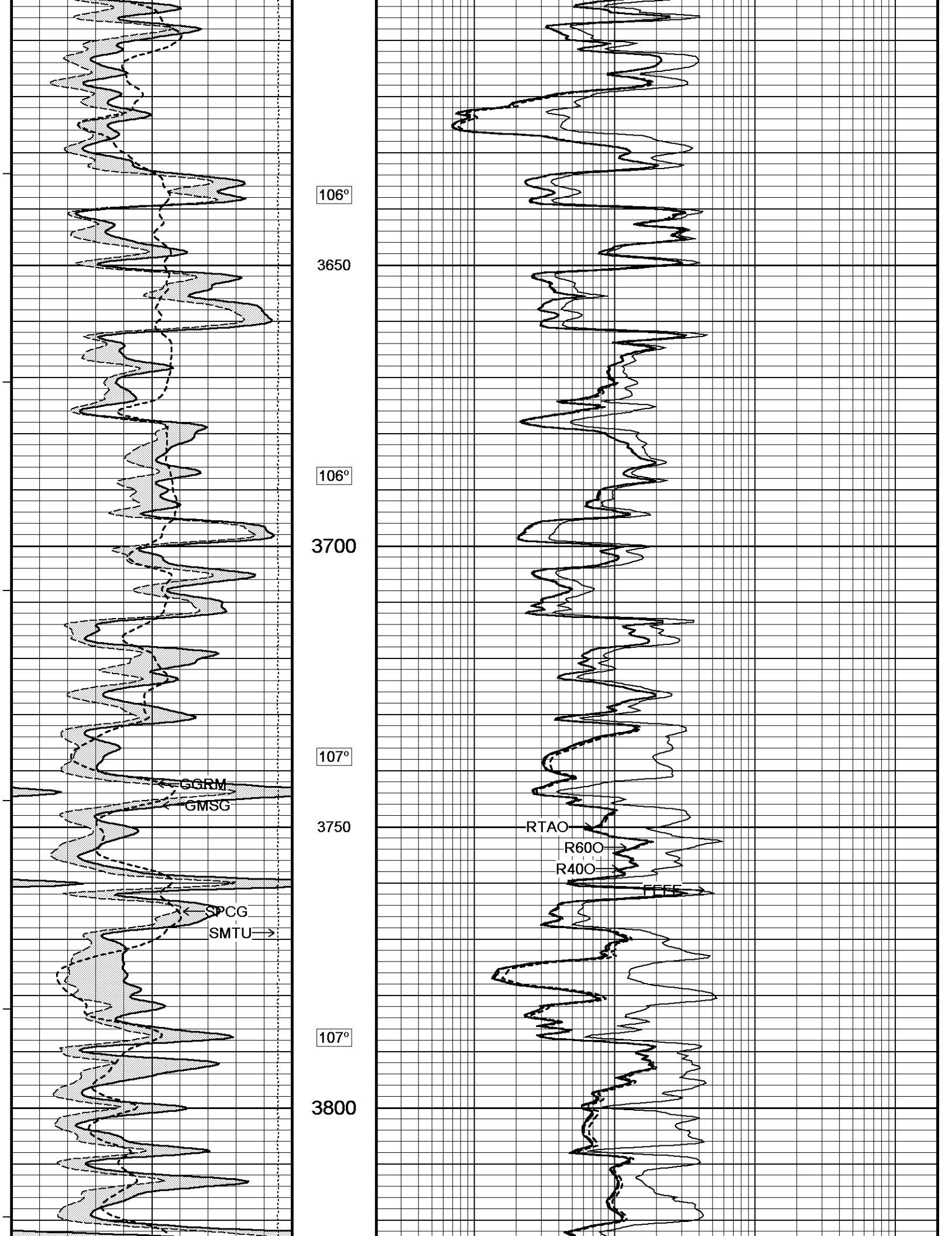
3600

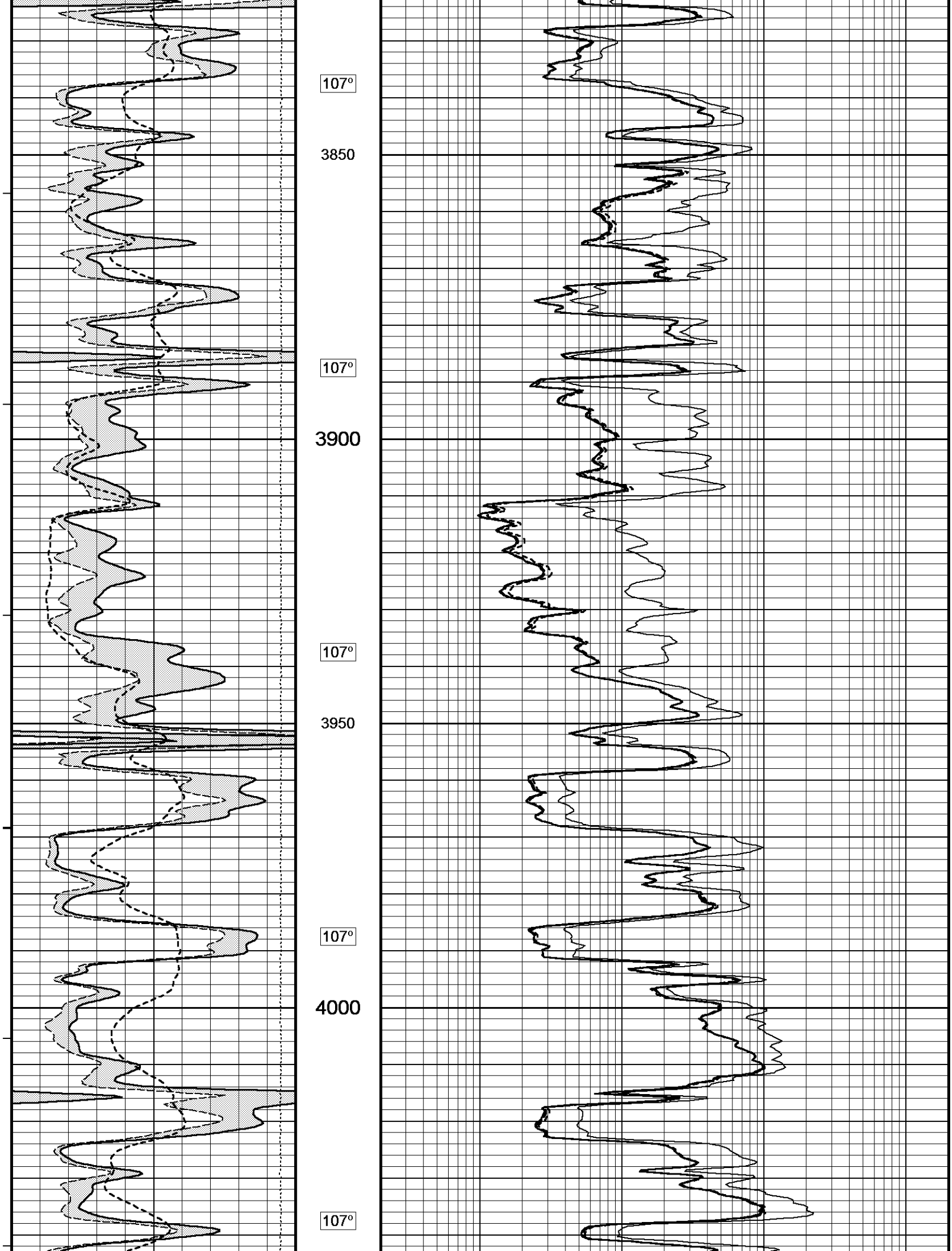
Shallow FE
ohm metres
0.20 2000
1 10 100 1000

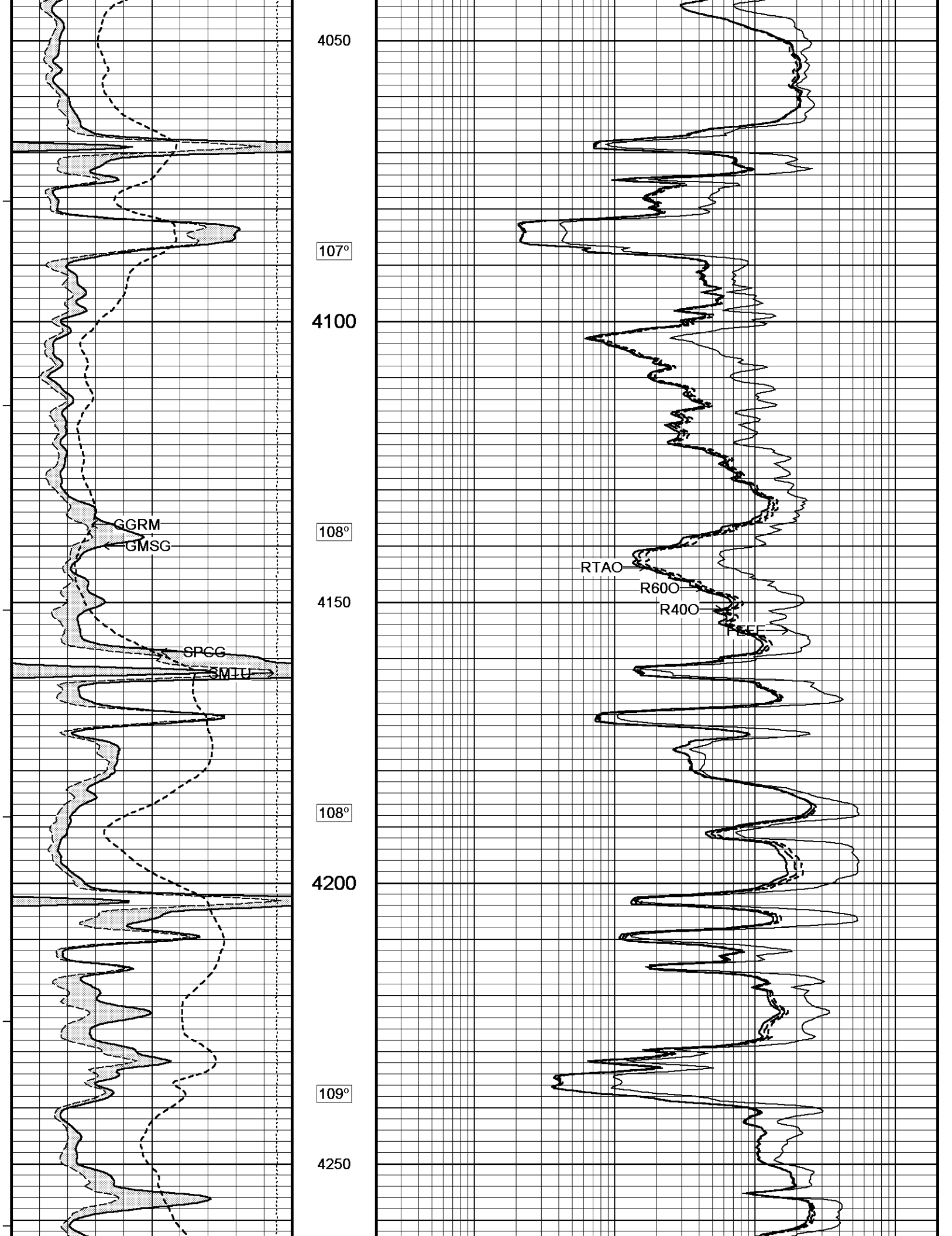
Array Ind. One Res 40
ohm metres
0.20 2000
1 10 100 1000

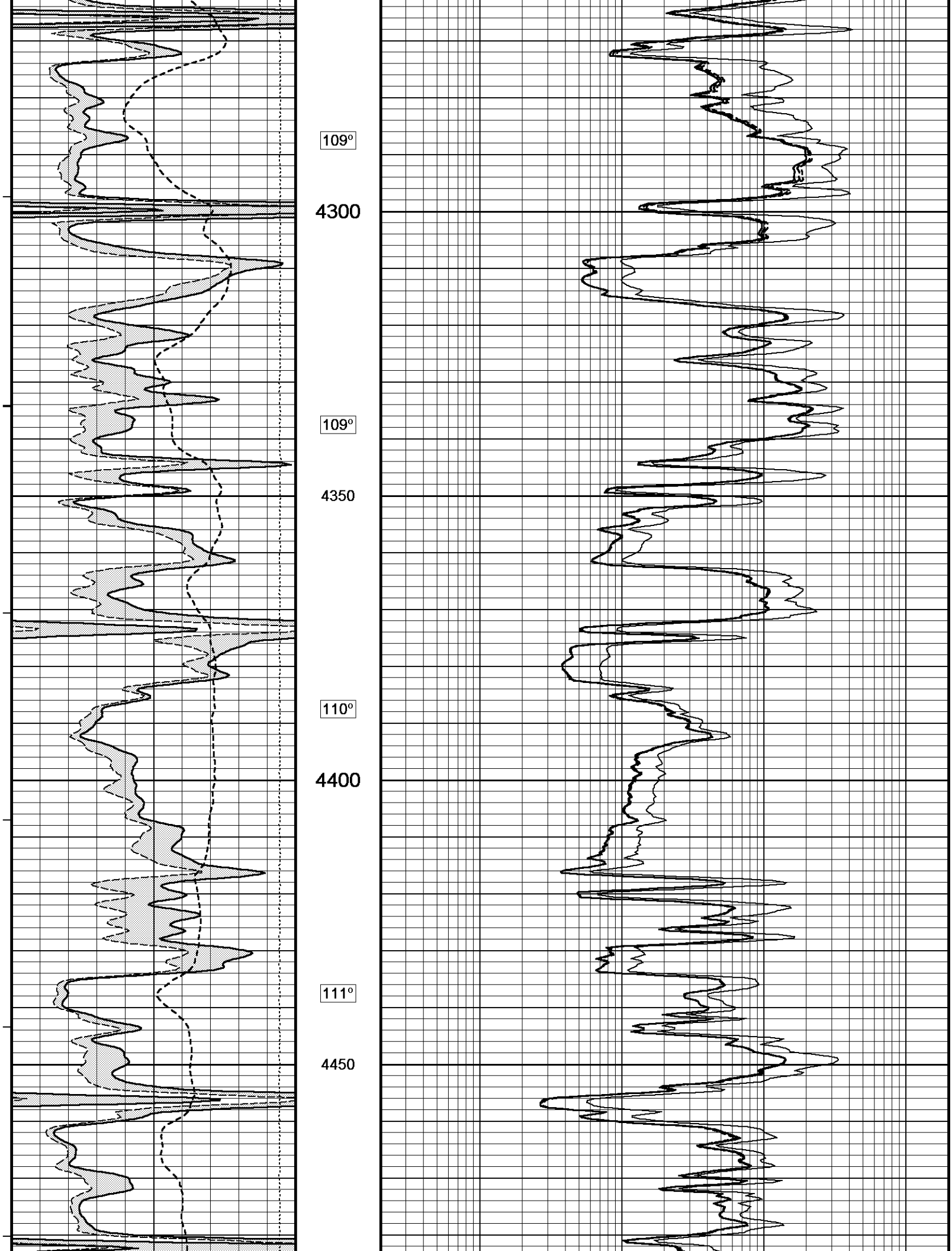
Array Ind. One Res 60
ohm metres
0.20 2000
1 10 100 1000

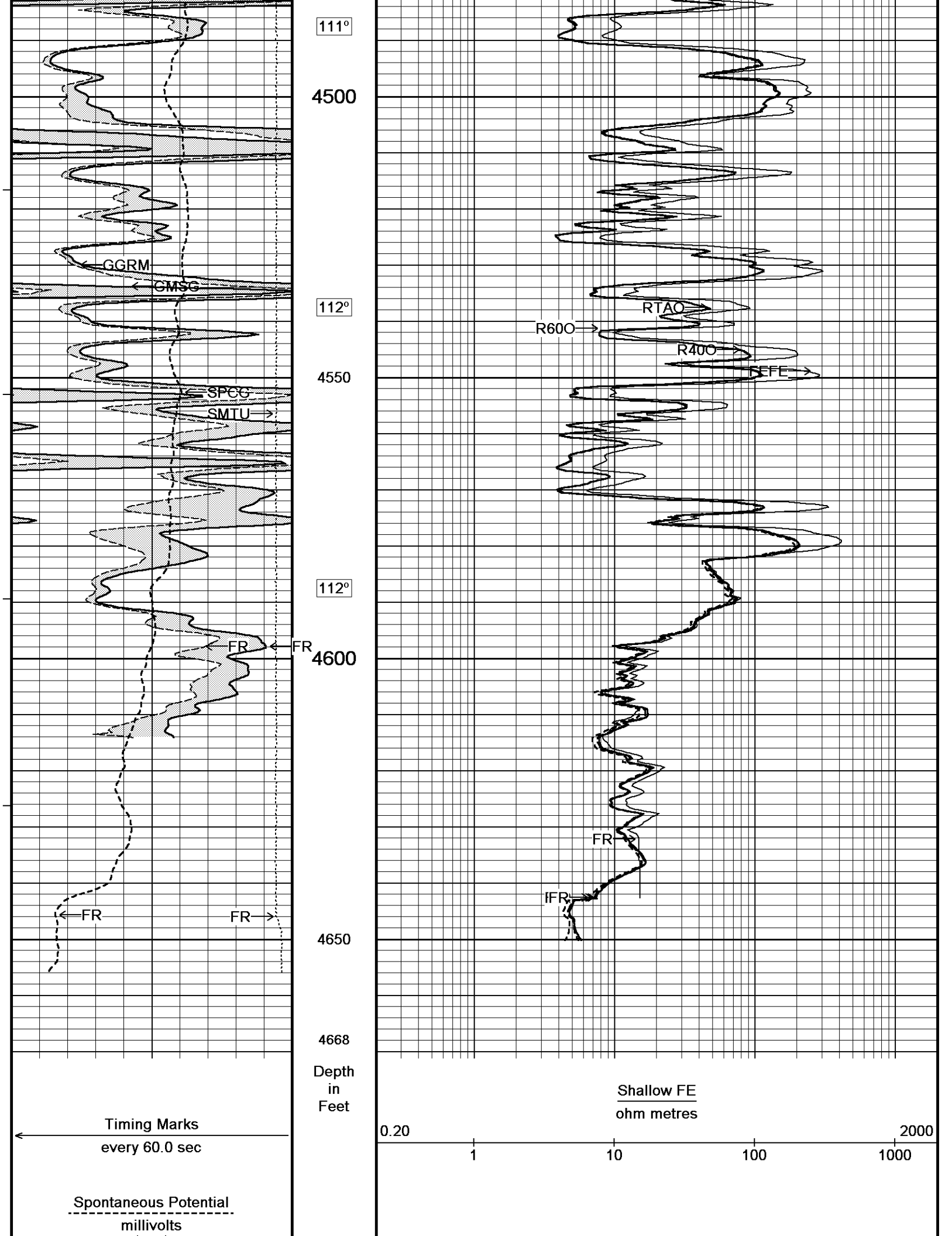
Array Ind. One Res Rt
ohm metres
0.20 2000
1 10 100 1000

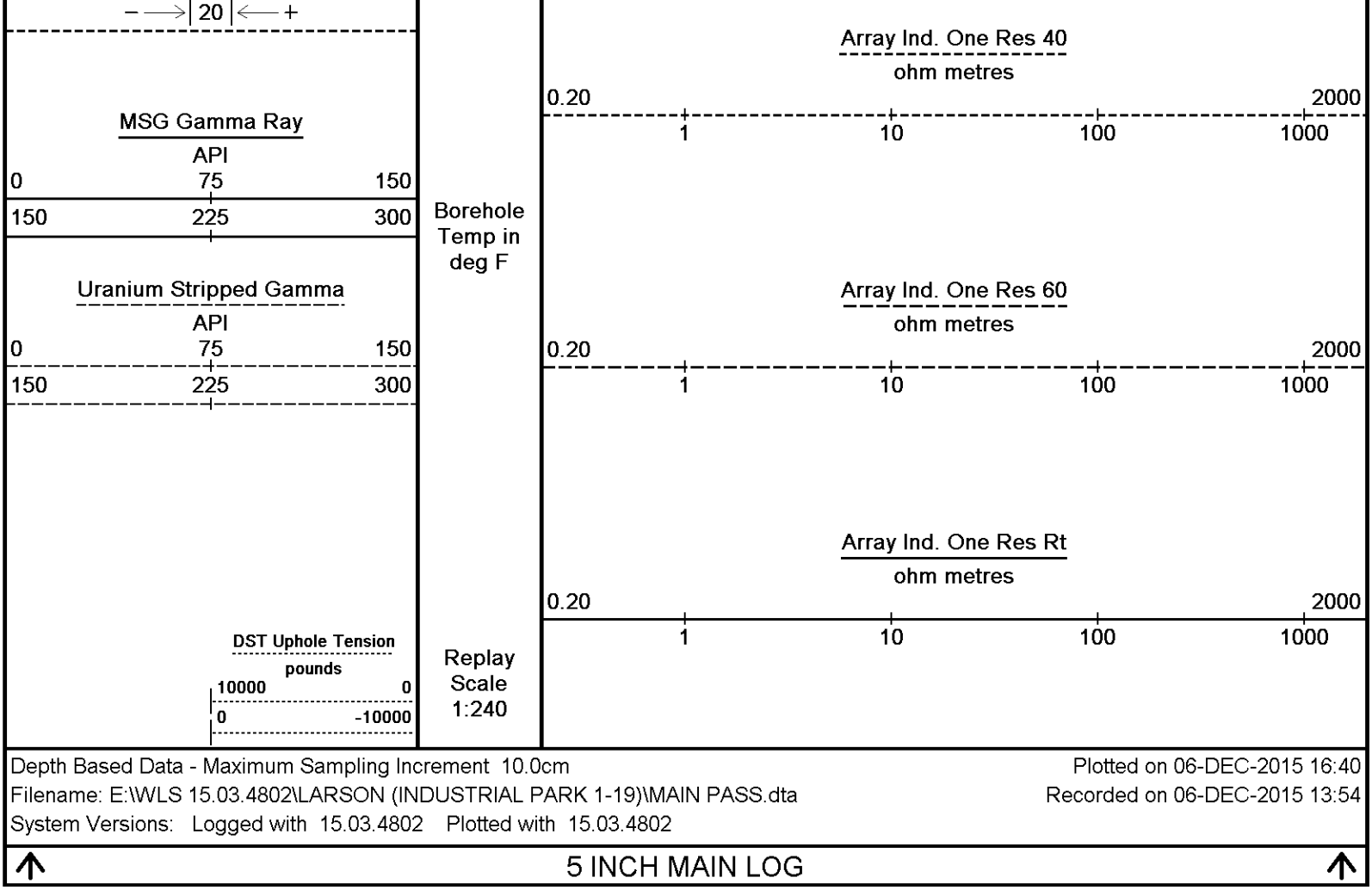

106°
3650
106°
3700
107°
GGRM
GMSG
3750
RTAO
R60O
R40O
FEFE
SPCG
SMTU
107°
3800


107°
3850
107°
3900
107°
3950
107°
4000
107°


4050
107°
4100
GGRM
GMSG
108°
RTAO
R60O
4150
R40O
SPCG
SMTU
108°
4200
109°
4250


109°
4300
109°
4350
110°
4400
111°
4450


111°
4500
GGRM
GMSC
112°
4550
SPCG
SMTU
112°
FR
FR
4600
FR
FR
4650
4668
RTAO
R60O
R40O
SFFE
FR
IFR
Depth
in
Feet
Timing Marks
every 60.0 sec
Spontaneous Potential
millivolts
Shallow FE
ohm metres
0.20
2000
1
10
100
1000

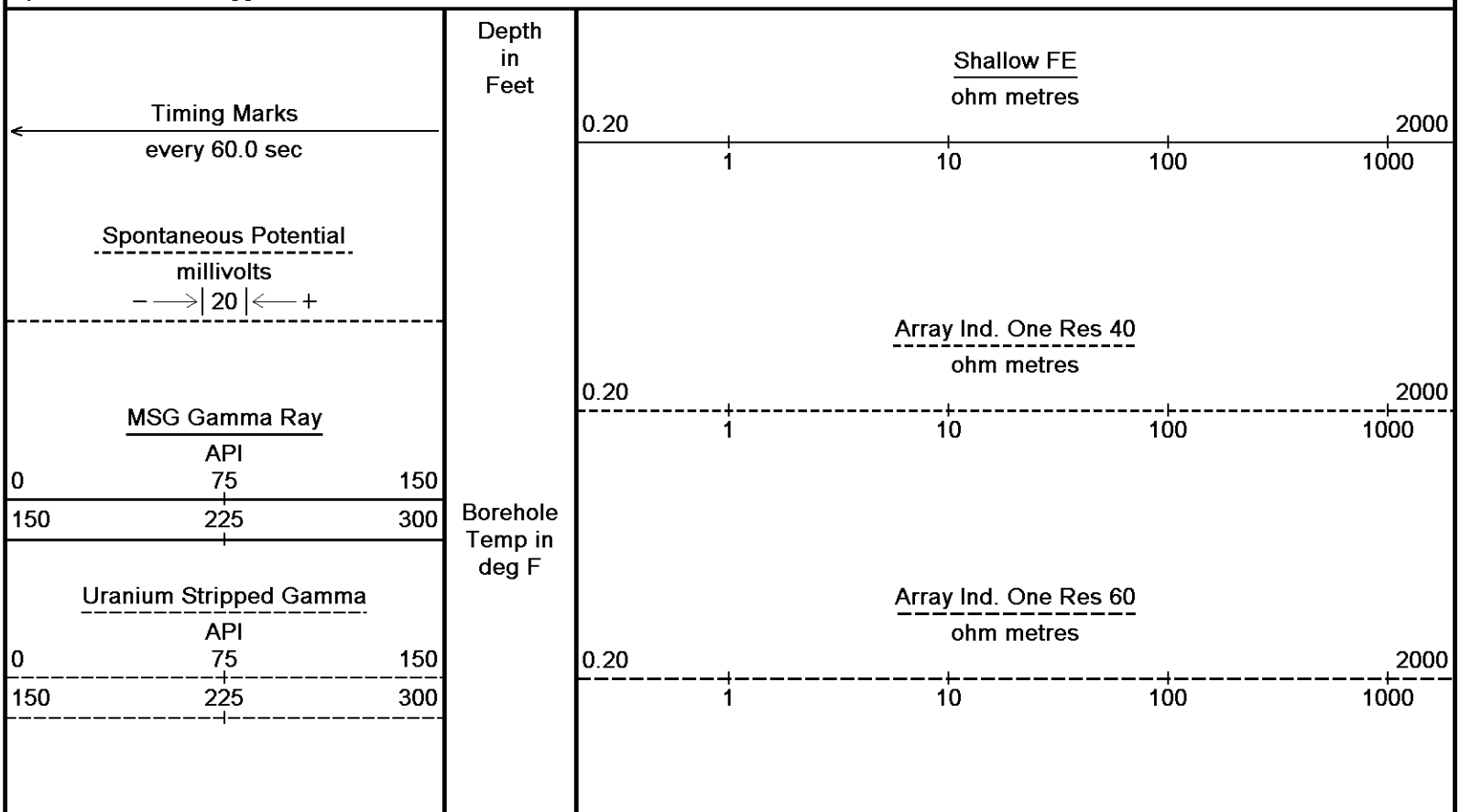


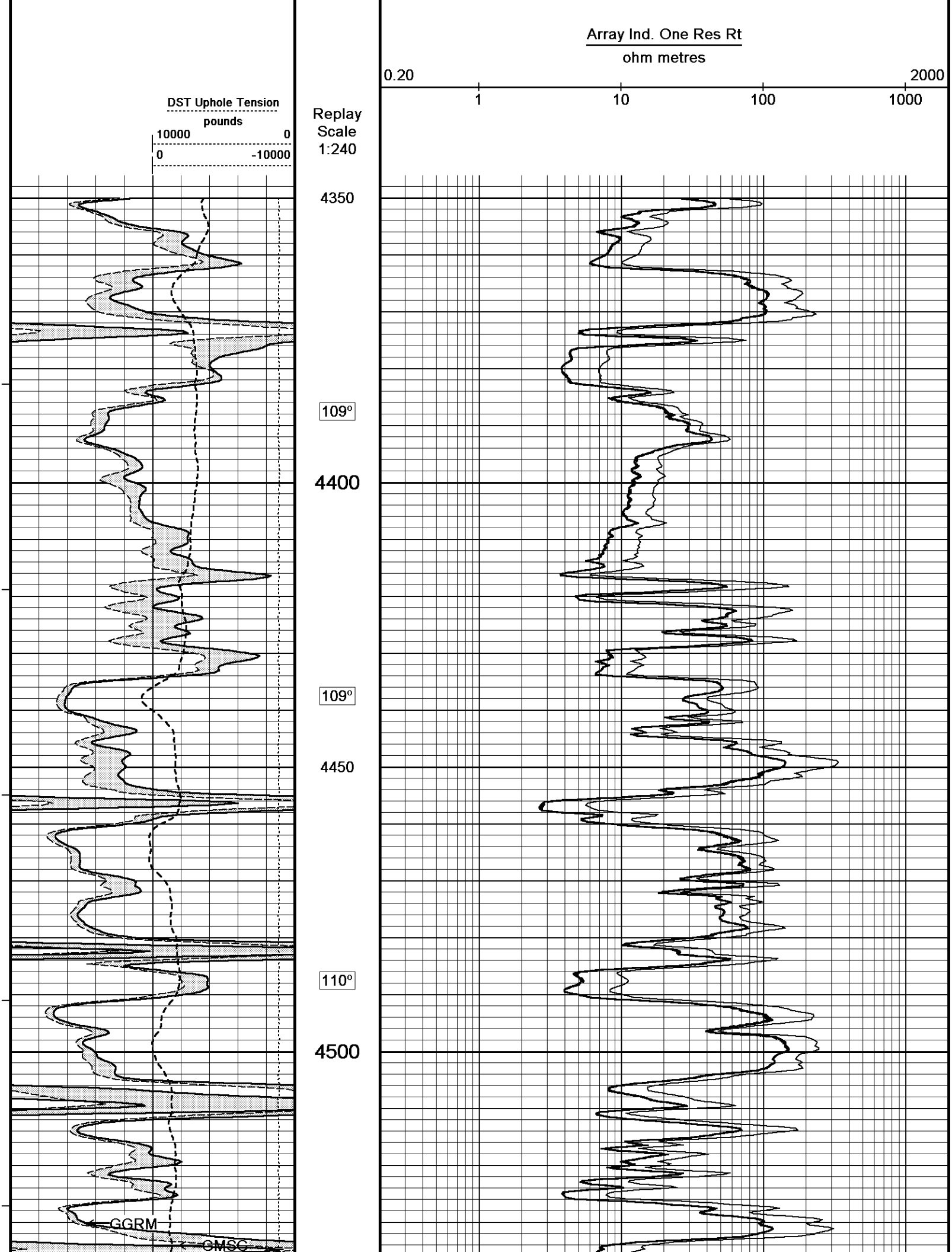
Depth Based Data - Maximum Sampling Increment 10.0cm — Plotted on 06-DEC-2015 16:40
Filename: E:\WLS 15.03.4802\LARSON (INDUSTRIAL PARK 1-19)\MAIN PASS.dta — Recorded on 06-DEC-2015 13:54
System Versions: Logged with 15.03.4802 Plotted with 15.03.4802

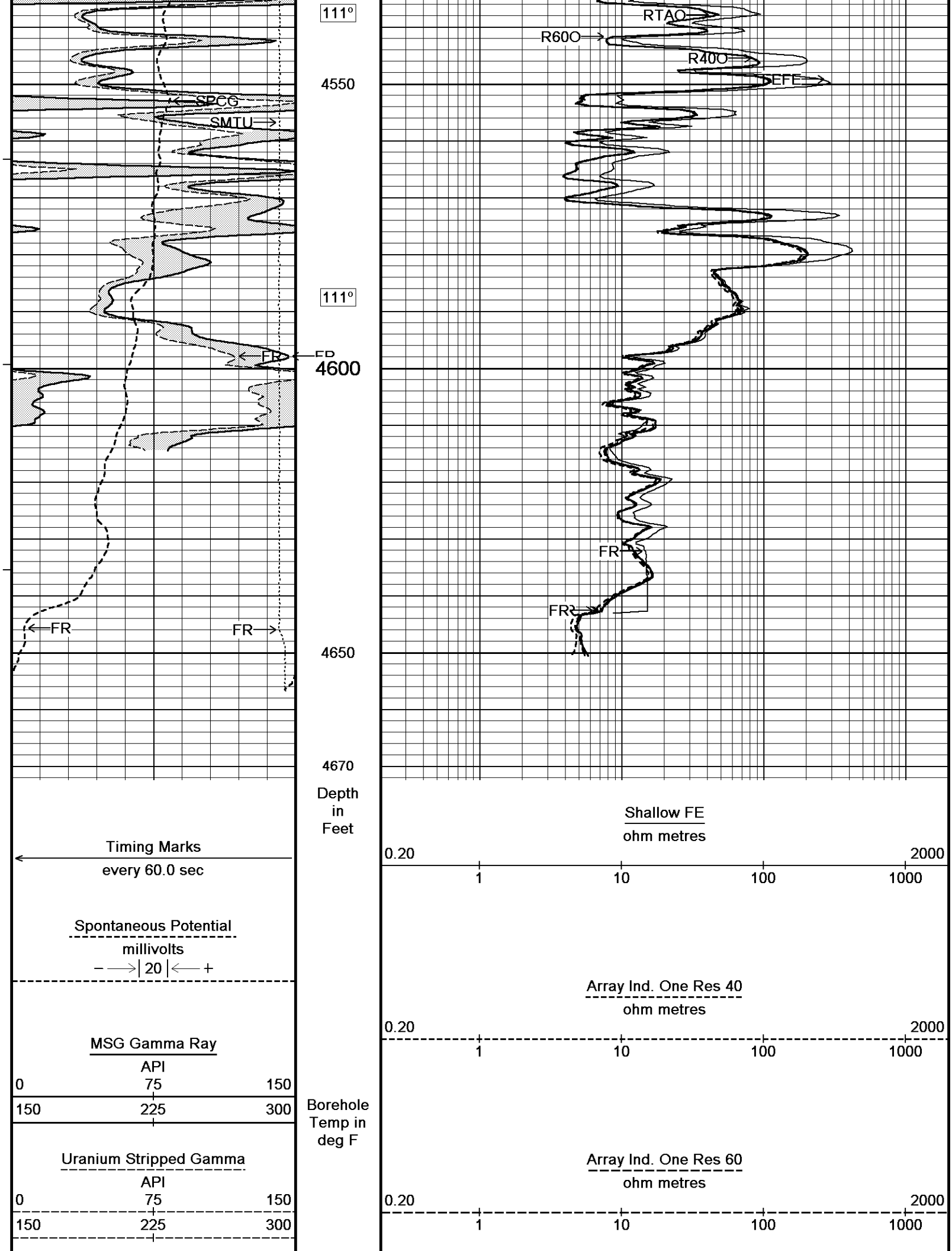
5 INCH MAIN LOG

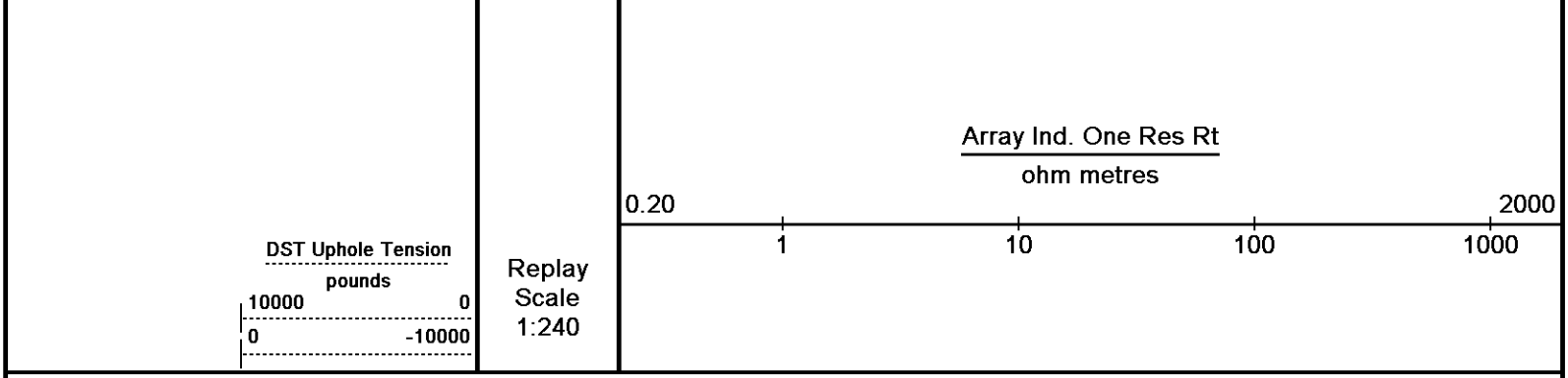
REPEAT SECTION

Depth Based Data - Maximum Sampling Increment 10.0cm — Plotted on 06-DEC-2015 16:40
Filename: E:\WLS 15.03.4802\LARSON (INDUSTRIAL PARK 1-19)\REPEAT PASS.dta — Recorded on 06-DEC-2015 13:38
System Versions: Logged with 15.03.4802 Plotted with 15.03.4802




DST Uphole Tension
pounds
10000
0
0
-10000
Replay
Scale
1:240
Array Ind. One Res Rt
ohm metres
0.20
2000
1
10
100
1000
4350
109°
4400
109°
4450
110°
4500
GGRM
GMSC


111°
4550
SPCG
SMTU
111°
FR
4600
FR
FR
4650
4670
RTAO
R60O
R40O
EFE
FR
FR
Depth
in
Feet
Timing Marks
every 60.0 sec
Spontaneous Potential
millivolts
– 20 +
MSG Gamma Ray
API
0 75 150
150 225 300
Uranium Stripped Gamma
API
0 75 150
150 225 300
Borehole
Temp in
deg F
Shallow FE
ohm metres
0.20 2000
1 10 100 1000
Array Ind. One Res 40
ohm metres
0.20 2000
1 10 100 1000
Array Ind. One Res 60
ohm metres
0.20 2000
1 10 100 1000



Depth Based Data - Maximum Sampling Increment 10.0cm — Plotted on 06-DEC-2015 16:40
Filename: E:\WLS 15.03.4802\LARSON (INDUSTRIAL PARK 1-19)\REPEAT PASS.dta — Recorded on 06-DEC-2015 13:38
System Versions: Logged with 15.03.4802 Plotted with 15.03.4802

REPEAT SECTION

BEFORE SURVEY CALIBRATION

E:\WLS 15.03.4802\LARSON (INDUSTRIAL PARK 1-19)\DATA.dta

General Constants All 000

Last Edited on 06-DEC-2015,12:25

General Parameters		
Mud Resistivity	2.500	ohm-metres
Mud Resistivity Temperature	52.000	degrees F
Water Level	0.000	feet
Borehole Fluid Processing	Wet Hole	
Hole/Annular Volume and Differential Caliper Parameters		
HVOL Method	Single Caliper	
HVOL Caliper 1	Density Caliper	
HVOL Caliper 2	N/A	
Annular Volume Diameter	5.500	inches
Caliper for Differential Caliper	Density Caliper	
Rwa Parameters		
Porosity used	Base Density Porosity	
Resistivity used	Array Ind. One Res Rt	
RWA Constant A	0.610	
RWA Constant M	2.150	
SW/APOR Tool Source	0.000	

High Resolution Temperature Calibration MCG-E.A 571

Field Calibration on 26-NOV-2015,09:10

	Measured	Calibrated(Deg F)
Lower	50.00	50.00
Upper	100.00	100.00

High Resolution Temperature Constants MCG-E.A 571

Last Edited on 22-JUL-2014,14:44

Pre-filter Length	11

FE Calibration MFE-B.J 359

Base Calibration on 05-NOV-2015 09:50
Field Check on 06-DEC-2015 05:59

Base Calibration

	Measured	Calibrated (ohm-m)
Reference 1	0.0	0.0
Reference 2	967.8	126.8
Base Check		278.6
Field Check		278.8

FE Calibration Tolerances MFE-B.J 359

Reference 2	967.8	-3%	980.0	+3%	ohm
Base Check	278.6	-2%	277.0	+2%	ohm-m

Field Check	278.8	-2% 278.6 +2%	ohm-m

FE Constants MFE-B.J 359

Last Edited on 06-DEC-2015,05:57

Running Mode	No Sleeve	
MFE K Factor	0.1268	
Borehole Correction Constants		
Sonde Position	0.5	inches
Hole Size Source	Density Caliper	
Hole Size Constant Value	N/A	inches
Rm Source	Global Value: Temperature Corrected	
Temp. for Rm Corr.	MCG External Temperature	

Induction Calibration MAI-B.J 392

Base Calibration on 06-DEC-2015,05:54
Field Check on 06-DEC-2015 05:57

Base Calibration

Test Loop Calibration

Channel	Measured Low	Measured High	Calibrated (mmho/m) Low	Calibrated (mmho/m) High
1	15.4	450.7	9.3	966.2
2	5.4	363.0	7.6	821.4
3	3.4	248.8	5.2	566.0
4	2.1	125.2	2.6	279.2
Array Temperature		24.2	Deg F	

Test Loop Calibration Verified

Channel	Base Check (mmho/m) Low	Base Check (mmho/m) High	Field Check (mmho/m) Low	Field Check (mmho/m) High	
1			15.9	4025.8	
2			32.6	3712.2	
3			29.4	3181.7	
4			20.1	2211.0	
Deep			16.9	2094.0	
Medium			43.2	4158.1	
Shallow			50.3	5469.1	
Array Temperature		0.0	58.5		Deg F

Induction Calibration Tolerances MAI-B.J 392

Low Conductivity 1	15.4	13.0 17.0 21.0	mmho/m	High Conductivity 1	450.7	430.0 475.0 520.0 mmho/m
Low Conductivity 2	5.4	4.5 6.0 7.5	mmho/m	High Conductivity 2	363.0	345.0 385.0 425.0 mmho/m
Low Conductivity 3	3.4	1.0 3.5 6.0	mmho/m	High Conductivity 3	248.8	240.0 260.0 280.0 mmho/m
Low Conductivity 4	2.1	0.0 2.0 4.0	mmho/m	High Conductivity 4	125.2	120.0 135.0 150.0 mmho/m
Background Vx 1	0.0	-110.0 -32.5 45.0	mmho/m	Phase Check Loop 1	0.0	-2.0 0.0 2.0 %
Background Vx 2	0.0	-35.0 20.0 75.0	mmho/m	Phase Check Loop 2	0.0	-2.0 0.0 2.0 %
Background Vx 3	0.0	-60.0 2.5 65.0	mmho/m	Phase Check Loop 3	0.0	-2.0 0.0 2.0 %
Background Vx 4	0.0	-50.0 -17.5 15.0	mmho/m	Phase Check Loop 4	0.0	-2.0 0.0 2.0 %

Induction Constants MAI-B.J 392

Last Edited on 06-DEC-2015,12:21

Induction Model	RtAP-WBM	
Borehole Correction Constants		
Tool Centred	No	
Hole Size Source	Density Caliper	
Hole Size Constant Value	N/A	inches
Stand-off Type	Fins	
Stand-off	0.50	inches
Number of Fins on Stand-off	6.0000	
Stand-off Fin Angle	60.00	degrees
Stand-off Fin Width	0.5000	inches
Rm Source	Global Value: Temperature Corrected	
Temp. for Rm Corr.	MCG External Temperature	

Squasher Start	0.0020	mhos/metre
Squasher Offset	N/A	mhos/metre

Borehole Normalisation

DRM1	0.0000	DRC1	0.0000
DRM2	0.0000	DRC2	0.0000
MRM1	0.0000	MRC1	0.0000
MRM2	0.0000	MRC2	0.0000
SRM1	0.0000	SRC1	0.0000
SRM2	0.0000	SRC2	0.0000

Calibration Site Corrections

Channel 1	0.00	mmhos/metre
Channel 2	0.00	mmhos/metre
Channel 3	0.00	mmhos/metre
Channel 4	0.00	mmhos/metre

Symmetrised Receiver Gains

Receiver 1	1.00
Receiver 2	1.00
Receiver 3	1.00
Receiver 4	1.00

Apparent Porosity and Water Saturation Constants

Archie Constant (A)	1.00	
Cementation Exponent (M)	2.00	
Saturation Exponent (N)	2.00	
Saturation of Water for Apor	100.00	percent
Resistivity of Water for Apor and Sw	0.05	ohm-m
Resistivity of Mud Filtrate for Sw	0.00	ohm-m
Source for Rt	0.00	
Source for Rxo	0.00	

Compact Spectral Gamma Calibration MSG-A.A 119

Base Calibration on 25-AUG-2015 12:42
Field Calibration on

Base Calibration

Gamma Ray

	Measured	Calibrated (API)
Background	42	18
Calibrator (Gross)	730	314
Calibrator (Net)	688	296

Mixture Calibrator

	Gate 1	Gate 2	Gate 3	Gate 4	Gate 5
Background	34.2	5.2	1.4	0.4	0.5
Calibrator (Gross)	580.8	100.0	29.9	9.0	10.0
Calibrator (Net)	546.5	94.8	28.5	8.6	9.5

	K %	U ppm	Th ppm
Concentrations	6.0	17.1	40.5

Potassium Calibrator

	Gate 1	Gate 2	Gate 3	Gate 4	Gate 5
Background	34.2	5.2	1.4	0.4	0.5
Calibrator (Gross)	108.2	34.5	15.8	0.4	0.6
Calibrator (Net)	74.0	29.3	14.4	0.1	0.0

	K %	U ppm	Th ppm
Concentrations	5.8	0.0	0.0

Uranium Calibrator

	Gate 1	Gate 2	Gate 3	Gate 4	Gate 5
Background	34.2	5.2	1.4	0.4	0.5
Calibrator (Gross)	322.2	44.6	10.7	6.0	2.4
Calibrator (Net)	288.0	39.4	9.3	5.6	1.9

	K %	U ppm	Th ppm
Concentrations	0.0	17.0	0.0

Thorium Calibrator

	Gate 1	Gate 2	Gate 3	Gate 4	Gate 5
Background	34.2	5.2	1.4	0.4	0.5
Calibrator (Gross)	240.0	34.7	6.6	3.7	9.0

Calibrator (Net)	205.8	29.4	5.2	3.3	8.5

	K %	U ppm	Th ppm
Concentrations	0.0	0.0	41.1

Field @ Base Calibration

Calibration Type

496
525

Gamma Ray

	Measured	Calibrated (API)
Background	41.8	18.0
Calibrator (Gross)	729.7	314.0
Calibrator (Net)	687.9	296.1

Mixture Calibrator

	Gate 1	Gate 2	Gate 3	Gate 4	Gate 5
Background	34.2	5.2	1.4	0.4	0.5
Calibrator (Gross)	580.8	100.0	29.9	9.0	10.0
Calibrator (Net)	546.5	94.8	28.5	8.6	9.5

Field Calibration

Calibration Type

000

Gamma Ray

	Measured	Calibrated (API)
Background	0.0	0.0
Calibrator (Gross)	0.0	0.0
Calibrator (Net)	0.0	0.0

Mixture Calibrator

	Gate 1	Gate 2	Gate 3	Gate 4	Gate 5
Background	0.0	0.0	0.0	0.0	0.0
Calibrator (Gross)	0.0	0.0	0.0	0.0	0.0
Calibrator (Net)	0.0	0.0	0.0	0.0	0.0

Compact Spectral Gamma Calibration Tolerances MSG-A.A 119

Base Check K	5.81	-13.80% 6.00 +13.80%	%	Field @ Base Check K	0.00	-13.80% 6.00 +13.80% %
Base Check U	17.03	-13.80% 17.10 +13.80%	ppm	Field @ Base Check U	0.00	-13.80% 17.10 +13.80% ppm
Base Check T	36.71	-13.80% 40.50 +13.80%	ppm	Field @ Base Check T	0.00	-13.80% 40.50 +13.80% ppm
Field Check K	0.00	-13.80% 0.00 +13.80%	%			
Field Check U	0.00	-13.80% 0.00 +13.80%	ppm			
Field Check T	0.00	-13.80% 0.00 +13.80%	ppm			

Compact Spectral Gamma Constants MSG-A.A 119

Last Edited on 06-DEC-2015,12:20

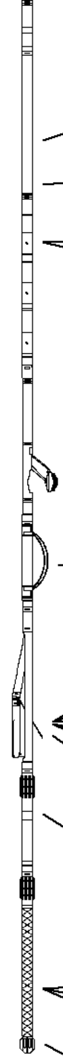
Background Calibrator Number	496	
Mixture Calibrator Number	525	
Potassium Calibrator Number	499	
Uranium Calibrator Number	505	
Thorium Calibrator Number	502	
Mud Density	1.11	gm/cc
Caliper Source for Processing	Density Caliper	
Tool Position	Eccentred	
Potassium Equivalence	Chloride	
K Mud Concentration	0.00	%

DOWNHOLE EQUIPMENT

E:\WLS 15.03.4802\LARSON (INDUSTRIAL PARK 1-19)\DATA.dta

Cablehead, 11 pin

CBH-C 175 LG: 2.40 ft WT: 24.3 lb OD: 2.240 in



Tool	Offset	Measurement
Compact Swivel Head Adaptor SHA-J.B 719 LG: 2.30 ft WT: 22.0 lb OD: 2.244 in	54.43 ft	GRGC - MCG Gamma Ray
Compact Comms Gamma MCG-E.A 571 LG: 8.70 ft WT: 63.9 lb OD: 2.244 in	51.53 ft	CGXT - MCG External Temperature
	47.96 ft	GGRM - Uranium Stripped Gamma
Compact Spectral Gamma MSG-A.A 119 LG: 10.94 ft WT: 90.4 lb OD: 2.244 in	47.96 ft	GMSG - MSG Gamma Ray
Compact Micro-Resistivity MMR-A 33 LG: 8.59 ft WT: 81.6 lb OD: 4.882 in	34.24 ft	MBTC - MMR Caliper
	33.24 ft	MINV - MMR MicroLog Inverse
	33.24 ft	MNRL - MMR MicroLog Normal
Compact Neutron MDN-B.J 391 LG: 5.04 ft WT: 50.7 lb OD: 2.244 in	28.45 ft	NPRL - Limestone Neutron Por.
Compact Density/Caliper MPD-B 120 LG: 9.59 ft WT: 90.4 lb OD: 2.449 in	21.21 ft	CLDC - Density Caliper
	21.21 ft	AVOL - Annular Volume
	21.21 ft	HVOL - Hole Volume
	19.28 ft	DCOR - Density Correction
	19.28 ft	DPRL - Limestone Density Por.
	19.22 ft	PDPE - PE
Compact Focussed Electric MFE-B.J 359 LG: 6.05 ft WT: 48.5 lb OD: 2.244 in	13.72 ft	FEFE - Shallow FE
Compact Induction MAI-B.J 392 LG: 10.81 ft WT: 48.5 lb OD: 2.240 in	3.34 ft	R40O - Array Ind. One Res 40
	3.34 ft	RTAO - Array Ind. One Res Rt
Total Length: 64.41 ft Weight: 520.3 lb	3.34 ft	R60O - Array Ind. One Res 60
	Tool Zero	(0.13ft from bottom)
	-0.13 ft	SMTU - DST Uphole Tension

All measurements relative to tool zero.

COMPANY	LARSON ENGINEERING, INC.
WELL	INDUSTRIAL PARK #1-19
FIELD	WIDLCAT
PROVINCE/COUNTY	LANE
COUNTRY/STATE	USA / KANSAS

Elevation Kelly Bushing	2770.00	feet	First Reading	264.00	feet
Elevation Drill Floor	2768.00	feet	Depth Driller	4650.00	feet
Elevation Ground Level	2761.00	feet	Depth Logger	4646.00	feet

Weatherford®

ARRAY INDUCTION
SHALLOW FOCUSED
ELECTRIC LOG

Weatherford

COMPANY LARSO
WELL INDUS
FIELD WIDL
PROVINCE/COUNTY LANE
COUNTRY/STATE USA /
LOCATION 936' F
SEC 19 TWP 18S RGE 2
API Number 15-101-
Permanent Datum GL, Elevation
Log Measured From KB
Drilling Measured From KB
Date 06
Run Number On
Service Order 70
Depth Driller 46
Depth Logger 46
First Reading 26
Last Reading 46
Casing Driller 26
Casing Logger 26
Bit Size 7.
Hole Fluid Type W
Density / Viscosity 9.
PH / Fluid Loss 9.
Sample Source M
Rm @ Measured Temp 2.
Rmf @ Measured Temp 2.
Rmc @ Measured Temp 3.
Source Rmf / Rmc C
Rm @ BHT 1.
Time Since Circulation 5
Max Recorded Temp 11
Equipment / Base 13
Recorded By JU
Witnessed By VE

ARRAY INDUCTION
SHALLOW FOCUSED
ELECTRIC LOG

...ON ENGINEERING, INC.
...STRIAL PARK #1-19
...CAT
KANSAS
...NL & 1163' FEL NW-SW-NE-NE

Elevations:	feet
KB	2770.00
DF	2768.00
GL	2761.00

Other Services: MDN/MPD, MMR, MSG

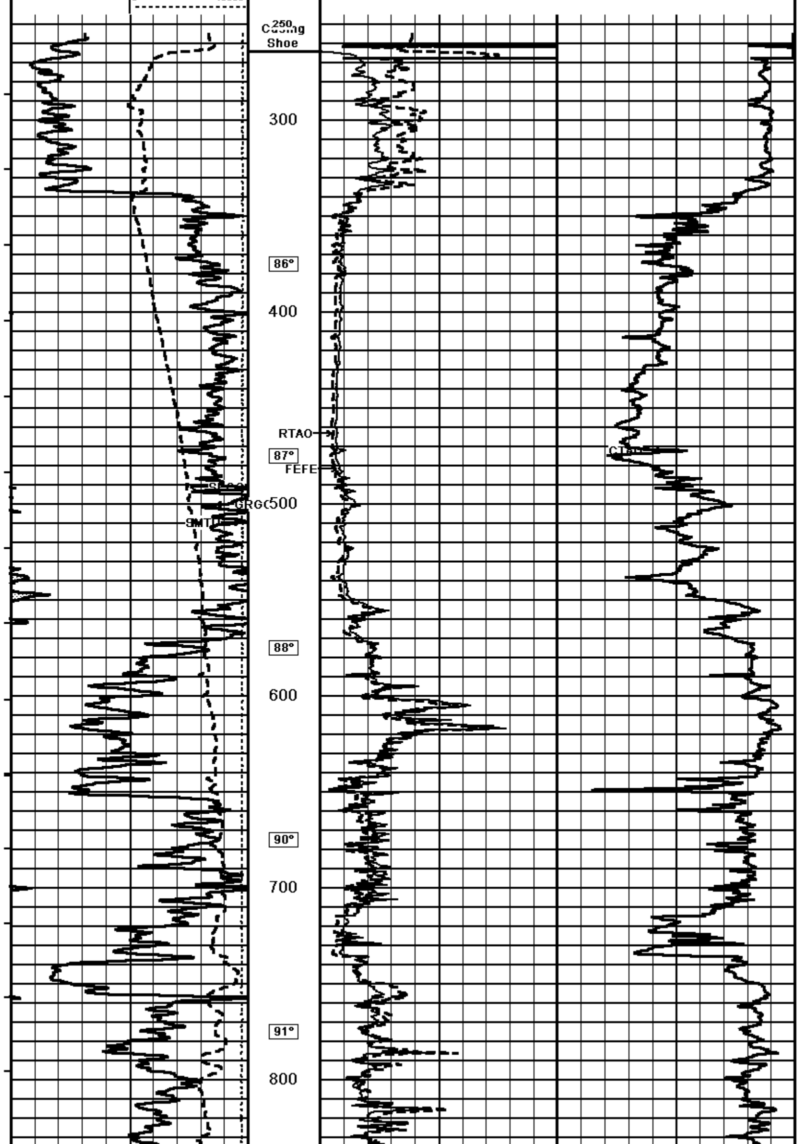
-DEC-2015

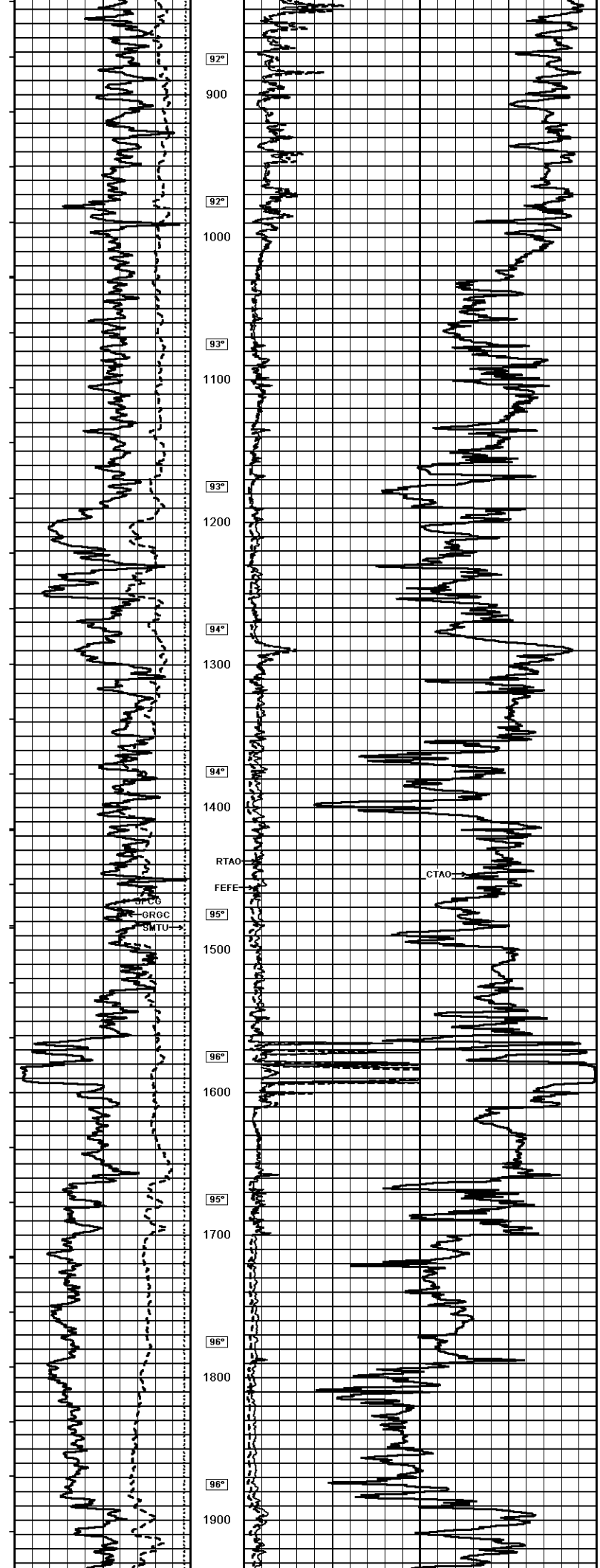
1 INCH MAIN LOG

Depth Based Data - Maximum Sampling Increment 10.0cm
Filename: E:\WLS 15.03.4802\LARSON (INDUSTRIAL PARK 1-19)\MAIN PASS.dta
System Versions: Logged with 15.03.4802 Plotted with 15.03.4802

Plotted on 06-DEC-2015 16:40
Recorded on 06-DEC-2015 13:54

Track 1	Depth	Tracks 2–3
Timing Marks — every 60.0 sec	Depth In Feet	Array Ind. One Cond Ct — mmhos/metre: 1000 / 750 / 500 / 250 / 0; 2000 / 1750 / 1500 / 1250 / 1000
Gamma Ray — API: 0 / 75 / 150; 150 / 225 / 300		Shallow FE — ohm metres: 0 / 25 / 50; 0 / 250 / 500
Spontaneous Potential — millivolts: − → | 20 | ← +	Borehole Temp in deg F	Array Ind. One Res Rt — ohm metres: 0 / 25 / 50; 0 / 250 / 500
DST Uphole Tension — pounds: 10000 / 0; 0 / -10000	Replay Scale 1:600	

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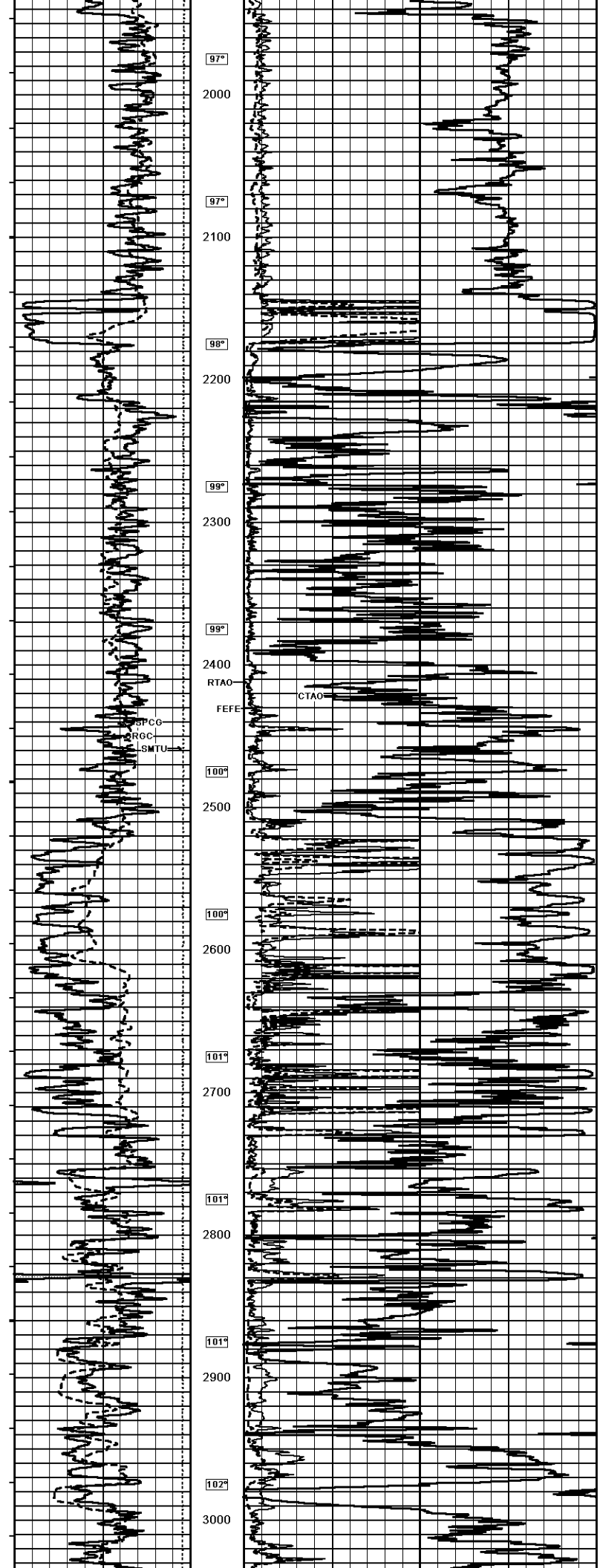
92°
1000
93°
1100
93°
1200
94°
1300
94°
1400
RTAO
FEFE
GRGC
SMTU
CTAO
95°
1500
96°
1600
95°
1700
96°
1800
96°
1900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2100
98°
2200
99°
2300
99°
2400
RTAO
CTAO
FEFE
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CRGC
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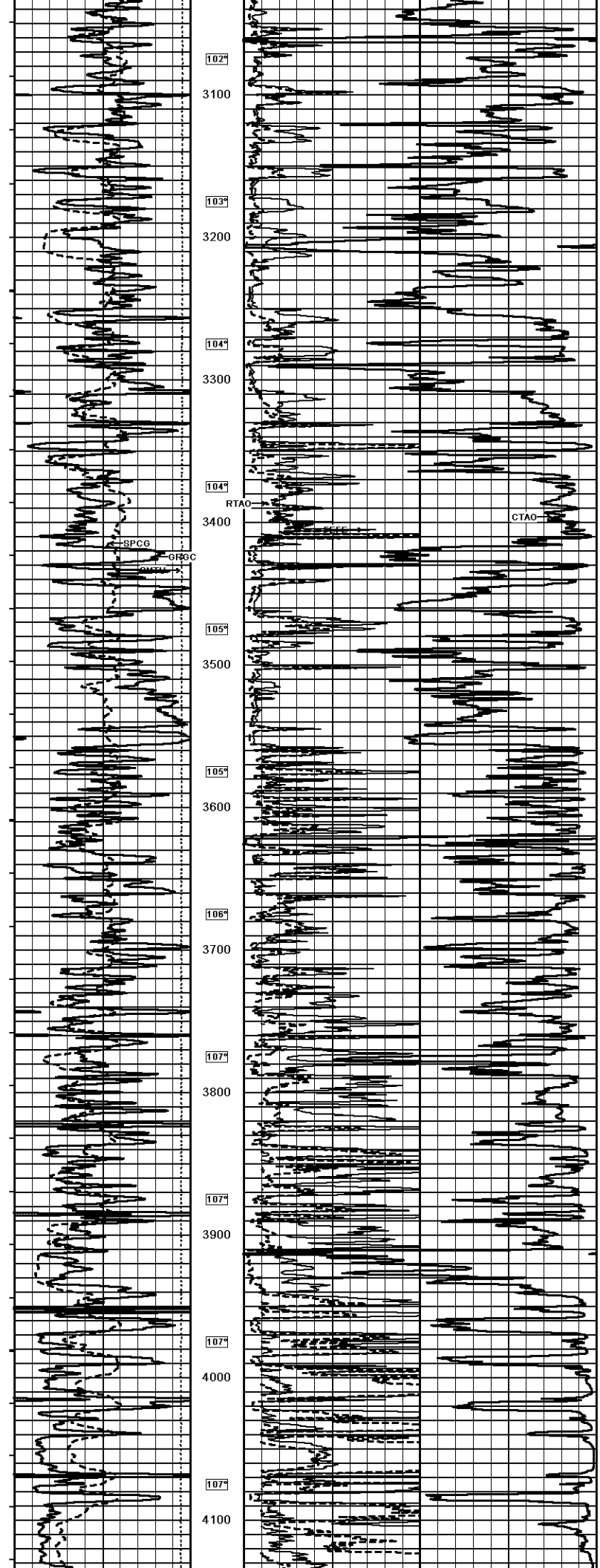
3000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104°
3300
104°
RTAO
CTAO
3400
SPCG
GR3C
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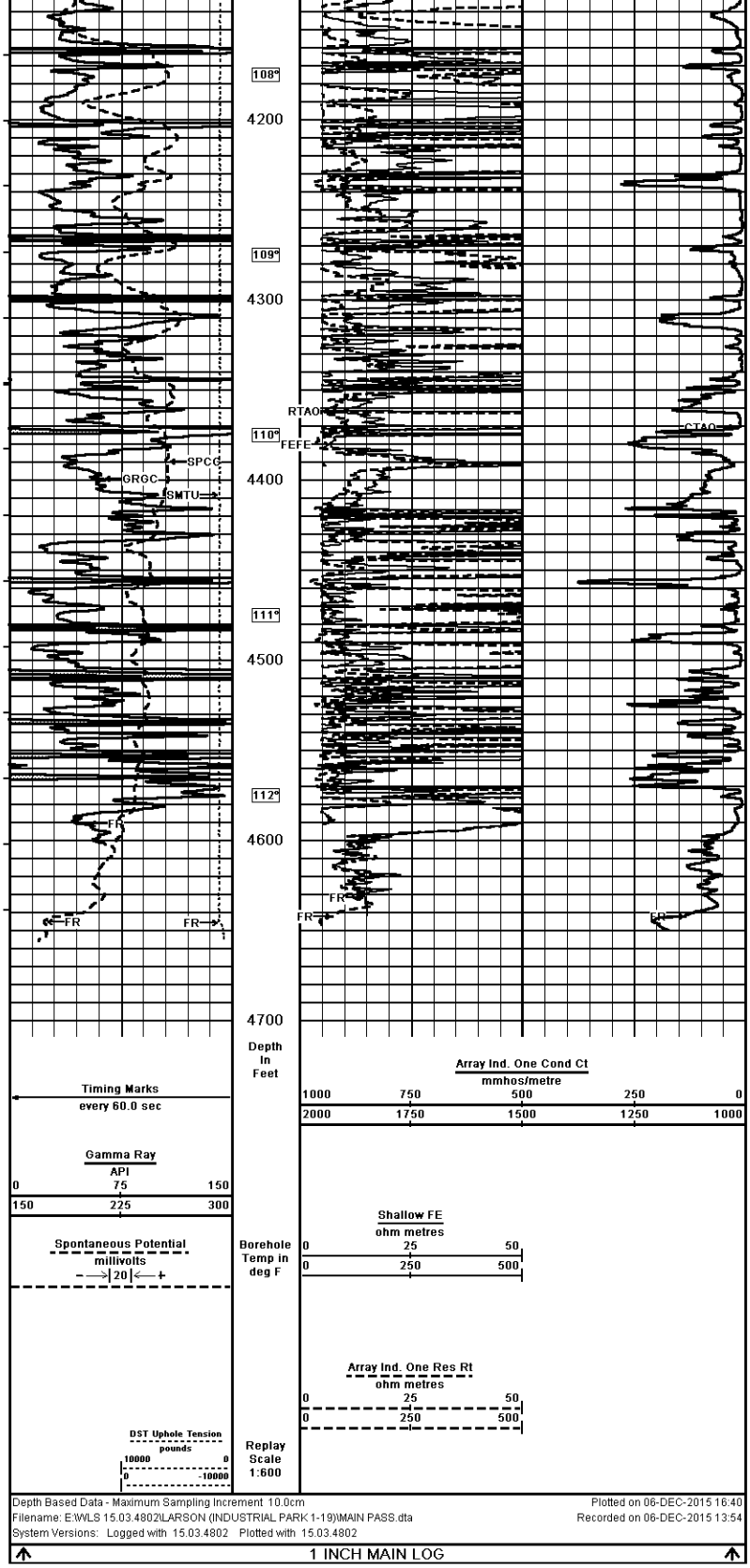

Depth Based Data - Maximum Sampling Increment 10.0cm — Plotted on 06-DEC-2015 16:40

Filename: E:\WLS 15.03.4802\LARSON (INDUSTRIAL PARK 1-19)\MAIN PASS.dta — Recorded on 06-DEC-2015 13:54

System Versions: Logged with 15.03.4802 Plotted with 15.03.4802

1 INCH MAIN LOG

COMPANY	LARSON ENGINEERING, INC.
WELL	INDUSTRIAL PARK #1-19
FIELD	WIDLCAT
PROVINCE/COUNTY	LANE
COUNTRY/STATE	USA / KANSAS

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